

YAESU
Radio for Professionals

CAPRI 88 144330000
DUAL BAND DIGITAL TRANSCEIVER

FTM-510DR
FTM-510DE

Operating Manual



Introduction

Features of the Yeasu FTM-510GRDCE Transceiver

- ◻ Equipped with a front speaker. The AES3 dual speaker system uses the main body speaker in combination the front panel speaker to provide clear audio quality and spacious 3D effect.
- ◻ Total audio output is 5W (3W main body, 2W control head) High sound quality, loud speaker.
- ◻ The latest operating system ECU-V (Easy to Operate-V) affords a new operating feeling with dual module Touch A/C/P and Search & Go functions.
- ◻ The PMS (Primary Memory Group Activity Monitor) function can register up to 5 channels with the unique appearance of the VCS-M memory channels by strongly pushing and holding the **MEM** key. Press the **AMP** key to scan the registered frequency and display the **ECU** on status display graph in a real time bar graph.¹⁾
- ◻ The Super SDR function increases the sensitivity of the HF amplifier when the received signal is weak, and expands the communication range.
- ◻ Holding the Audio Digital Signal Processing Unit "SDS-L1" permits digitally processing the received audio signal to separate and remove noise. The voice can be enhanced to produce clear, comfortable audio quality. Even weak signals that were previously inaudible due to noise can thus be received clearly.
- ◻ Digital communication using Yeasu's CAPM (Customary PSK) system.
- ◻ Simultaneous reception of two channels (remote, on direct bands, or within the same band (V/U/LP/V/U/LM/LP)).
- ◻ Equipped with AMS (Automatic Mode Select) feature that automatically selects the working FM or the CFM signal mode according to the signal of the other station.
- ◻ The 4-axis High-Resolution OGA (On-Gate TFL) touch-panel display shows the communication status and settings of the FTM-510GRDCE in a straightforward manner, achieving easy-to-operate.
- ◻ The LFL (Location Function List) can be personalized by registering frequently used functions (up to 8) from the 127 items Setup Menu.
- ◻ MMS (Memory Channel Band Auto-Grouping). The memory channels are automatically categorized in each band, so that memory channels can be easily and quickly searched.
- ◻ High-resolution band scope that displays 81 channels.
- ◻ Wide-band reception (DSBMC to DSBMC).
- ◻ Built-in GPS unit permits display of the current location and heading information.
- ◻ Installation of the optional Bluetooth BLE-2 unit permits hands-free communication using the optional Bluetooth headset SBMS-123 or a commercially available product.
- ◻ Large-capacity 1153 memory channels.
- ◻ Heavy Duty/Power-Save with PACC (Power-Up/Connection Controller).
- ◻ WIRELESS-V Portable Digital Noise or Fixed Noise with HRS-200.
- ◻ Equipped with digital SM Group Monitor function.
- ◻ Ready for APRS²⁾ communication with world standard 1200/9600bps AX25 modem.
- ◻ Compatible with microSD memory cards.

Thank you for purchasing the FTM-510GRDCE Transceiver. We urge you to read the manual to its ending, and also the Repair Manual (available for download on the Yeasu website), to gain a full understanding of the amazing capability of the exciting new FTM-510GRDCE Transceiver.

WIRELESS-V, CAT function and APRS instruction manuals are not included in the product package. They are available and may be downloaded from the Yeasu.com website.

Quick Guide

1. Turn the Power ON

Press and hold the (POWER/LOCK) switch.

When turning the power ON for the first time after purchasing, input the call sign of your own station.

1. When turning the power ON for the first time after purchasing, the call sign input screen will be displayed.



2. Press the FUNC key (upper left).

3. Input the call sign.

Touch the character on the screen, or rotate the FUNC knob to select and change. And then press the FUNC key.

→ move the cursor to the right.

→ move the cursor to the left.

→ delete character to left of cursor line. (see input screen* on page 8)

→ input a call sign.

4. Repeat step 3 to input the remaining call sign character.

5. Press and hold FUNC key to complete inputting.

The Contest is turned OFF once and the Contest is automatically Normal operation (VFO Mode) screen will be displayed.

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3. Select the Operating Band

Press the **BY** key.

4. Tune the Frequency

Rotate the DIAL knob.

5. Adjust the volume

Rotate the VOL/SCL knob to adjust the volume to a comfortable level.

6. Adjust the squelch setting

The squelch level may be adjusted to mute the background noise when no signal is received.

1. Press the VOL/SCL knob.

2. Rotate the VOL/SCL knob to adjust the squelch to a level at which the background noise is muted.

*When the squelch level is increased, the noise is more likely to be silenced, but it may become more difficult to receive weak signals.

3. Press the VOL/SCL knob again or wait for about 3 seconds to complete the adjustment.

7. Select the communication mode

In the factory settings, the communication mode automatically corresponds to the signal being received.

Press the **CT** key or touch the mode area on the display to manually select the communication mode.

8. Transmit/Receive Signals

Talk into the microphone while touching the PTT switch on the side. Release the PTT switch to return to receive.

9. Set the Bluetooth function

To use a Bluetooth headset, refer to "Bluetooth Operation" on page 60 for setting.

Supplied Accessories and Options

Supplied Accessories

- DTMF microphone SSM-850
- I/O covers (with keys) (see attached)
- Bracket for main body
- Spare keys (156)
- Operating Manual (This Manual)

 If any item is missing, contact the dealer from which you purchased the teleconverter.

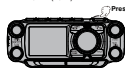
Available Options

- | | |
|--|----------|
| • Display Headset | S-MH-030 |
| • Dash Mount Bracket | MB-103 |
| • Control Cable 200 (two) | CS-102 |
| • Control Cable 100 (one) | SCU-60 |
| • Mic Extension NS 100 (one) (for SSM-850 and MH-42CU) | MS-60 |
| • WIRELESS Connection Cable Kit | SCU-68 |
| • Audio Digital Signal Processing Unit | SPU-1 |
| • Voice Guide Unit | FVS-2 |
| • DTMF Microphone | SSM-850 |
| • Microphone | MH-42CU |
| • Bluetooth Unit | BU-5 |
| • Bluetooth Headset | SSM-8100 |
| • High-Power External Speaker | MS-100 |

Basic Operation

Turning the Transceiver ON

1. Press and hold the **POWER (LOCK)** switch to turn the transceiver ON / OFF.



Inputting the call sign

1. The first time the transceiver is turned ON after it is purchased, input your own call sign.
2. Press the **FUNC** knob to proceed to the call sign input screen.
3. When the transceiver is subsequently turned ON, the opening screen appears, followed by the frequency screen.
4. The input call sign may be changed from the Setup Menu (CN CALL SIGN).

- ▶ **▶** to move the cursor to the right.
- ▶ **◀** to move the cursor to the left.
- ▶ **☐** change to the numeric and symbol input.
- ▶ **☐** delete the character left of the cursor.

- ▶ **⏪** Go to 10 characters (letters, numbers, and a hyphen) can be entered.

4. Repeat step 3 to input the remaining call sign characters.
5. Press and hold the **FUNC** knob to conclude inputting. Normal operating (VFO Mode) screen will be displayed.



Adjusting the volume

1. Rotate the VOL knob to adjust the volume to a comfortable level.

Adjust the volume for
Main Band (upper)



Adjust the volume for
Sub Band (lower)

Adjusting the squelch level

Any noisy noises can be muted when a signal cannot be detected. Normally, use the factory settings, but adjust the squelch if noise is heard.

1. Press the VOL/SQ knob, and then rotate the FUNC knob to adjust to a level at which the background noise is muted.

Adjust the squelch level
for Main Band (upper)



Adjust the squelch level
for Sub Band (lower)

- **SQ** appears on the display.
 - Adjustment is possible for Main band and Sub band.
2. After the adjustment, press the VOL/SQ knob again, or do nothing for about 3 seconds, the SQ meter will return to the VOL meter.

When the squelch level is increased, the noise is more likely to be eliminated, but it may become more difficult to receive weak signals.

Selecting a Frequency Band

- Press the **F** key to select the desired frequency band.

Main Band
108MHz - 127.9MHz
VHF-LPW Band
174MHz - 174.9MHz
430MHz-LPF Band
400MHz - 450.0MHz



- When the "band data function" display appears, the band to be used. Even when the band data is not set, the same frequency cannot be selected. Frequency used (operation) is indicated by moving when the frequency channel has the setting band information.
1. In the VFO mode, press and hold the **F** key or rotate the FUNC knob to select the band to set, or press the FUNC knob to select the band, or rotate the FUNC knob to select "OFF" (automatic) or "OFF" (not selected).

Tuning to a Frequency

- 1 Press the **OK** key to select the desired frequency band.
- 2 Rotate the **DIAL** knob to select the desired frequency.

- Available Frequency Bands**
 All Bands 103MHz - 137MHz
 AM/FM/PTT Band 137MHz - 146MHz
 VHF LPF Band 174MHz - 430MHz
 430MHz LPF Band 430MHz - 520MHz

- Keyboard Frequency entry (Direct Input)**
 1 Press and hold the **DIAL** knob to display the frequency input screen.
 Or press the **FUNC** knob → **(KEYPAD)** → press the **FUNC** knob.
 2 The leftmost digit will blink, then turn the **DIAL** knob to select the first digit.
 3 Press the **DIAL** knob, the second digit will blink.
 4 Rotate the **DIAL** knob to select the second digit.
 5 Repeat the same operation to select additional digits.
 Then press and hold the **DIAL** knob to conclude the input and confirm the frequency.

While entering frequency using the keyboard, the entry may be cancelled by pressing the **ESC** knob.

- Change the frequency rapidly (Mute (spk)own Function)**
 Press the **DIAL** knob to blink the MHz digit.
 Change the frequency in 1MHz steps by turning the **DIAL** knob while it is blinking.
 In this case, change the frequency within the range of 100MHz to 520MHz regardless of the band. Channels off in white the band that include the frequency.

See below for details on operating bands.

103MHz - 137MHz	→ All mode*
137MHz - 174MHz	→ Digital or FM mode
174MHz - 202MHz	→ FM mode*
202MHz - 220MHz (for USA) 202MHz	→ All mode*
220MHz (for USA) 202MHz - 430MHz	→ FM mode*
430MHz - 480MHz	→ Digital or FM mode
480MHz - 520MHz	→ FM mode





*Change to AM or PTT mode in the Set Menu (M.R.M.MODE).

• The numeric keys on microphones
 Press the numeric keys '0' to '9' to enter the frequency.
 Example: To input 146.520 kHz:
 [1] → [4] → [6] → [.] → [5] → [2] → [0]
 Example: To input 420.000 kHz:
 [4] → [2] → [0] → [.] → [0] → [0] → [0]

Switch between Main Band and Sub Band
 The two operational bands are displayed on the top and bottom of the touch screen. The upper display band on handset.
 Press the microphone [P] key (factory default) to switch to the 2nd band/frequency of the status of the screen.
 Each time the [P] key is pressed, the operating band switches between "Main" and "Sub".
 The upper display is called the "Main band" and the lower display is called the "Sub band".

Transmitting
 1. While pressing and holding PTT, speak into the microphone.
 2. Release the PTT to return to receive.
 • If the PTT switch is pressed when a frequency other than the current VHF radio band is selected, an alarm tone (beep) will be emitted. TX POWER meters on the display and transmit a double 4-long period, the transmitter if transmission is stopped by a long period, the transmitter is not started. At the time, the transmitting power level is automatically set to the Power. If transmission continues with the high transmitting power level, the transmitter will be shut down to protect the transmitter and the battery of the radio.
 Press

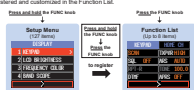
Locking the Keys and DIAL knob
 1. Press the [LOCK] switch. LOCK is shown on the display for one second, the [LOCK] icon appears on the display, and then the keys and DIAL knob are locked.
 Press the [LOCK] switch again. "UNLOCK" will be shown on the display and the keys and the DIAL knob are unlocked.
 The [LOCK] icon disappears.
 The PTT switch and the VOLUME knob cannot be locked.









Useful Functions

3) CFL: Custom Function List page 18

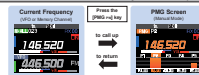
From 12F items of the Setup Menu, frequently used functions in the Function List can be registered and then invoked by simply pressing the FUNC knob. The Function List screen displays the registered functions and current settings in an easy-to-read form, so you can immediately select and use the function. By default, 10 functions are registered in the Custom Function List. Up to 8 frequently used functions can be registered and customized in the Function List.



- **Registration to the Custom Function List**
Press and hold the FUNC knob to display the setup menu, select the item to be registered with the FUNC knob, then press and hold the FUNC knob. Select the list position to register the setup item with the FUNC knob, and then press the FUNC knob to register the setup menu.

Press and hold the FUNC knob to display the setup menu.
- **Use the Function List**
Press the FUNC knob to display the function list screen, and select the function to be used with the FUNC knob or touch it on the screen. By pressing the FUNC knob, you can execute functions or change settings.

Press the FUNC knob to display the function list screen.
- **Cancel registration to Function List**
On the function list screen, select the function to cancel with the FUNC knob or touch it on the screen. Press and hold the FUNC knob to cancel registration.

Press and hold the FUNC knob to cancel registration.

The PMG function that displays the receive status of registered channels on a bar graph allows registration of up to 10 channels by memory and holding the **PMG** key for the correct display frequency of either the VFO or the memory channel. The PMG screen can be modified by auto mode or manual mode by press and hold the **DIAL** knob.

In manual mode, while receiving the channel selected with the **DIAL** knob, other channels are also scanned and a channel with a signal is automatically heard.



- Register the frequency to PMG
Display the frequency of the VFO or memory channel, then press and hold the **PMG** key. The frequency is registered to PMG.
- Display the PMG screen
Press the **PMG** key to display the PMG screen.

Press and hold the **DIAL** knob to switch between Manual Mode and Auto Mode.

Manual Mode:
While receiving the channel selected with the **DIAL** knob, other channels are also scanned and a channel with a signal is heard at the next time.
Transmission is heard for the channel selected with the **DIAL** knob.

Auto Mode:
The PMG channels are scanned and up to ten channels with signals are automatically received. When a signal disappears, scanning resumes and up to ten channels are always heard at the next time.
Transmission is automatically performed on the channel that received the signal.



Band Scope page 12

The receive status (signal strength) of the channels before and after the current frequency can be displayed as a bar graph, whether in VFO mode or in memory mode. Press the **DISP** key to display the band scope screen. When the selected channel is set to the center with the DIAL knob, the received audio is played.



MAG (Memory auto grouping) function page 52

Memory channels can be automatically grouped and recalled for each band. Press the **MEMO** key in memory mode. As the memory mode, each time the **MEMO** key is pressed, only memory channels of the specified frequency band are automatically recalled as a group, as shown below:



VFO Band skip function page 43

Stands that are not normally used can be skipped when the **SKIP** key is entered in VFO mode, press and hold the **SKIP** key select the band you wish to skip with the **FUNC** knob, and press the **FUNC** knob to set the **SKIP** function to the ON (automatic) / OFF (not selectable). You can skip recall from All Memory Channels a frequency that is saved in the band set to be skipped.



Memory channel → VFO copy page 51

Transfer the recalled memory channel to the VFO with one-touch operation. Press and hold the **DISP** key while recalling a memory channel to transfer the memory channel information to the VFO and switch to VFO mode.



Setup Menu List
 Frequently used items from the below 127 Setup Menu items, can be registered to the Function List. (See page 11) The grey () settings items are registered to the Function List by factory default. (See page 72 for detail information on the Setup Menu.)

Function Name	Menu Item	Function Name
00	0000	0000
01	0100	0100
02	0200	0200
03	0300	0300
04	0400	0400
05	0500	0500
06	0600	0600
07	0700	0700
08	0800	0800
09	0900	0900
10	1000	1000
11	1100	1100
12	1200	1200
13	1300	1300
14	1400	1400
15	1500	1500
16	1600	1600
17	1700	1700
18	1800	1800
19	1900	1900
20	2000	2000
21	2100	2100
22	2200	2200
23	2300	2300
24	2400	2400
25	2500	2500
26	2600	2600
27	2700	2700
28	2800	2800
29	2900	2900
30	3000	3000
31	3100	3100
32	3200	3200
33	3300	3300
34	3400	3400
35	3500	3500
36	3600	3600
37	3700	3700
38	3800	3800
39	3900	3900
40	4000	4000
41	4100	4100
42	4200	4200
43	4300	4300
44	4400	4400
45	4500	4500
46	4600	4600
47	4700	4700
48	4800	4800
49	4900	4900
50	5000	5000
51	5100	5100
52	5200	5200
53	5300	5300
54	5400	5400
55	5500	5500
56	5600	5600
57	5700	5700
58	5800	5800
59	5900	5900
60	6000	6000
61	6100	6100
62	6200	6200
63	6300	6300
64	6400	6400
65	6500	6500
66	6600	6600
67	6700	6700
68	6800	6800
69	6900	6900
70	7000	7000
71	7100	7100
72	7200	7200
73	7300	7300
74	7400	7400
75	7500	7500
76	7600	7600
77	7700	7700
78	7800	7800
79	7900	7900
80	8000	8000
81	8100	8100
82	8200	8200
83	8300	8300
84	8400	8400
85	8500	8500
86	8600	8600
87	8700	8700
88	8800	8800
89	8900	8900
90	9000	9000
91	9100	9100
92	9200	9200
93	9300	9300
94	9400	9400
95	9500	9500
96	9600	9600
97	9700	9700
98	9800	9800
99	9900	9900

Switch between Dual receive and Scope operation with one touch

Dual receive and Scope operations are switched each time the **DISP** key is pressed.

The center frequency of memory channel can be changed by turning the **DIAL** knob.
 In **RF Mode**, press and then turn the **DIAL** knob to select the frequency in **100kHz** increments.
 In **Memory Mode**, press and then turn the **DIAL** knob to select in **100kHz** increments.



Dual Receive



In Dual receive, both Main and Sub frequencies are received at the same time, and the volume is adjusted with each **VOL** knob.
 Switch the Main and Sub frequencies with the **DISP** key.

Scope Screen






Scope operation allows monitoring other frequencies on the Sub-display while receiving the Main frequency.
 The status (strength) of the signals in the upper and lower frequency channels (800 or 1200) or memory channels (1200 or 1200) are displayed on the Scope Bar graph centered on the current operating channel.

Change the number of channels displayed during scope operation

Press and hold the **FUNC** knob → Touch **(4 BAND SCOPE)** → Rotate the **FUNC** knob to select the setting.







Search & Go (Short press)

- Touch on the Scope screen Bar graph to access Dual VFO dual relative

<p>Scope Screen</p>  <p>Touch the bar</p> <p>Dual Relative at the frequency touched on the bar graph</p>  <p>Touch to return to the previous screen</p>	<p>Scope Screen</p>  <p>Change operation to VFO mode or Memory mode</p>
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Touch & Go (Long press)

- Long touch on the Scope screen Bar graph to search the Main VFO.
- On the Dual Relative screen, long touch on the starting area to search the Main VFO.
- On the scope screen, long touch on the frequency area to display the frequency input screen.

<p>Scope Screen</p>  <p>Long touch the bar</p> <p>Search to the frequency of the long-touched bar</p> 	<p>Dual Relative on the scope screen</p>  <p>Long touch the starting area</p> <p>Search to the frequency of the long-touched starting area</p> 	<p>Scope Screen</p>  <p>Long touch the frequency area</p> <p>Display the frequency input screen</p> 
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Quick Back function

- When taking from the current operating frequency to another frequency, pressing the **←** key within 0.5 seconds will automatically return to the previous frequency screen (not work with VFO).

PMG (Primary Memory Group)

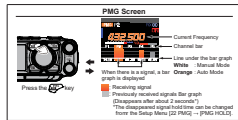
The PMG function screen is 1 to 5 channels registered to the PMG. The receive status of each channel is simultaneously displayed in real time with a bar graph. In addition, two channels with signals are simultaneously received, allowing convenient display. Operation differs between "Manual mode" and "Auto mode".

In manual mode, transmit and receive are performed on the selected channel. If a signal is received on another channel, it can be received at the same time.

In auto mode, when a signal is received on a selected channel, the radio automatically switches to the channel with the signal for transmit and receive.

If a signal is received on another channel, it can be received at the same time.

To register the currently displayed VFO or memory channel to the PMG, simply press and hold the **PMG** key on the frequency.



- * If there are no registered channels in PMG, the PMG screen will not be displayed even if the **PMG** key is pressed.
- * To adjust the volume during PMG operation, press the upper VOL/GCL knob and turn the adjustment knob on the PMG screen. The volume of the channel whose signal is being received on the PMG screen, and the volume of the other channels can be adjusted individually with the lower VOL/GCL knob.
- * Press and hold the **PMG** key to cancel the registration of the currently selected PMG screen.
- * Press and hold the **PMG** key on the PMG screen to copy the contents of the currently selected PMG channel to VFO, and enter VFO mode.
- * Press the frequency display (digital mode only) on the upper screen to display the contents with the display and direction in the other direction. Press the computer slider to return to the PMG screen.

Register the frequency to PMG

- Press and hold the **PMG** key to register the current frequency in PMG.
- Up to 5 channels can be registered in PMG. When registering more than five frequencies, other frequencies will be deleted in order from PMG.



Up to 5 channels can be registered in PMG. When registering more than five frequencies, other frequencies will be deleted in order from PMG.

Unregister the Channel (Frequency) registered in PMG

1. Select the channel (frequency) to be unregistered by hearing the DTMF.
2. Press and hold the **PMG** key to cancel the registration.



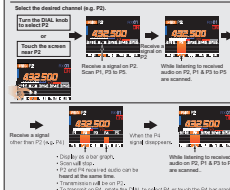
Cancel all frequency (channel) registered in PMG.
1. Press and hold the **PMG** key → **DTM FREQ** → **PMG CLEAR**
2. Press the **PMG** key to select 'OK', then press the **PMG** key.

Press and hold the **DIAL** knob Switch between **Manual Mode** and **Auto Mode**



Manual Mode


- While continuously receiving and transmitting on the **FAO** channel selected, if a signal is received on another channel, it can be received at the same time.
- Transmission is on the selected channel.
- Change historical received signal strength in gray (Disappears approximately 2 seconds after the signal is lost).
- When a signal is received on another channel, the signal strength is displayed as a bar graph and is automatically reset, but the current channel does not change. Turn the **DIAL** knob or touch the screen to change the transmit channel.



1. When P1 is selected with the open **VOX** key, and the **VOX** key is released, the **VOX** key is automatically set to **VOX** mode.


Auto Mode

- When a signal is received on the channel being scanned, the radio will automatic- ally switch to that channel. If a signal is received on another channel, it can be received at the same time.
- When a signal disappears, scanning resumes.
- The transmission is automatically performed on the channel that received the signal.
- Displays instead of received signal strength in gray. (Disappears approximately 2 seconds after the signal is lost).




When audio is received on PS, P1 & P3 to PS are scanned.

Receive a signal on PS



The channel will automatically change to PS. While listening to received audio on PS, P1, P2, P4 & P5 are scanned. Transmit will switch back to PS.

Receive a signal on PS



- Display of a bar graph.
- Color LED icon.
- PS and P1 received audio can be heard at the same time.
- Transmission is P1.
- If there are no PS, P1, P2, P4, P5 or P3, the PS bar graph.

The volume of PS can be adjusted with the upper VOLUME knob, and the volume of other channels can be adjusted with the lower VOLUME knob.

CFL (Customized Function List)

Easily operate frequently used functions by calling them from the Function list with one-touch operation of the FUNC keys. You can view the list of registered priority functions and the setting status on a screen, and you can execute the function or change the setting just by touching and pressing with the FUNC keys. The following functions are registered in the function list by factory default, but you can register up to 8 frequently used functions from 127 setup menu items (see page 72) and customize the list to suit your usage.



Function List display example (factory default setting)

1. 2D SYNC (VIDEO)	16. HOME ON (VIDEO)
2. SCAN	8. TALKPOWER
3. DIS. TIME	22. BPT PAGE
20. BPT REVERSE	46. TONE SCA. PRO. DIS. CODE
41. DTMF	67. VTR/SLIPDOWN

NOTE: The "TALKPOWER" and "HOME ON" displayed at the top of the screen cannot be changed.





Use the Function List

1. Press the FUNC keys.
2. Touch the desired function.
3. To return the FUNC keys to select the desired function, and then press the FUNC keys.




- **Close the Function List**
Press any key, touch or PTT switch, other than the FUNC keys and MAIN VOL/SOL keys or key to save the settings and return to normal operation.



Registration to the Function List

1. Press and hold the FUNC knob.
The Setup Menu screen is displayed.
2. Rotate the FUNC knob to select the item to be registered in the Function List.

3. Press and hold the FUNC knob.
The Function List screen appears, and the selected function name is shown.
NOTE: The "CENTRAL" and "HOME CH" displayed at the top of the screen cannot be changed.

4. Rotate the FUNC knob to select the location to register.

5. Press the FUNC knob.
 - The function is registered in the selected location and the Function List is changed.
 - If a location that has already been registered is selected, that item will be overwritten.

Cancel registration in the Function List

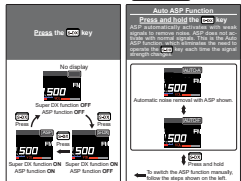
1. Press the FUNC knob.
The Function List screen is displayed.
2. Rotate the FUNC knob to select the registered item to delete.
NOTE: The "CENTRAL" and "HOME CH" displayed at the top of the screen cannot be changed.

3. Press and hold the  key.
The confirmation screen will be displayed.
4. Rotate the FUNC knob to select [OK] and press the FUNC knob.
The item will be deleted and the list item will be blank.


Super DX plus Noise Cancelling

The Super DX function increases the sensitivity of the RF amplifier when the received signal is weak, expanding the calling range. In addition, by enabling the DSP-LP (Auto Digital Signal Processing Unit), the received audio signal can be digitally processed to reproduce and enhance tones. The result can be enhanced to produce clearer, more comfortable sound quality. Even weak signals that were previously inaudible due to noise can now be received clearly.

Light icons indicate Super DX function is activated

Displays the operating status of the DSP and Super DX functions.

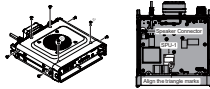


- When the ASPD function is activated, audio is heard from the two speakers only.
- When digital control was engaged, the digital control does not work.
- When the DSP-LP is activated, a preset of DSP or MP3 turns the Super DX function ON.
- The ASPD Auto function when the vehicle is stopped (except based on the signal strength of the radio wave) is not. To turn the ASPD function ON, press the Super DX key on the multi-band when using the automatic function. Only press from the Super DX key on the multi-band when using the Auto function.
- When the ASPD Auto function is enabled, about every 10 seconds the Super DX function is automatically turned on.
- When the Super DX function is enabled, pressing the Super DX key disables the function. The Super DX function is enabled automatically when the Super DX function is activated.

Installing the Audio Digital Signal Processing Unit (SPJ-1)

1. Disconnect all the cables and the microphone from the transceiver.
2. Remove the 8 screws from the main body, 4 on top and 2 each at the sides.
3. Carefully lift the top cover of the main body.
4. Using the square cables extending from the top cover from the socket on the board slide the main body further removing the cover.
5. Refer to the illustration for the mounting location of the SPJ-1. Align the triangle mark and fix the SPJ-1 at the way for the connector.
6. Fasten the SPJ-1 into place using the 2 screws supplied with the SPJ-1. Do not use increased screws, only use the supplied screws.
7. Replace the top cover and secure it using the 8 screws.

! Please note that the 2 screws on the front panel side of the top cover are longer than the other 6 screws.



AESS (Acoustic Enhanced Speaker System)

The phase adaptation speaker system AESS (Acoustic Enhanced Speaker System) is generated conjointly by the main-front speaker and the front speaker. By varying the physical features, and frequency characteristics of the front and main speaker and AESS achieves clear, high-quality audio that reduces fatigue even when used for sustained communications.

1. Press and hold the **VOLUME (VOL)** knob. Or press and hold the **FUNC knob** - **4x4et** [8 AUDIO SIGNALS].
2. Press the **FUNC knob**.
3. Rotate the **FUNC knob** to set the sound quality of the front speaker.
 - OFF** Standard sound quality without AESS
 - FLAT** Use AESS without changing sound quality
 - HIGH** Emphasizes high frequencies
 - LOW** Emphasizes low frequencies
 - BPF** Attenuates high and low frequencies
4. Press the **FUNC knob** to select such item of "REAR TONE", "REAR CUT" and "AESS PRESET". Then press the **FUNC knob**.
5. Rotate the **FUNC knob** and refer to the **REAR TONE** setting.
6. Press any key or knob other than the **FUNC knob** or **HOME** key to save the settings and return to normal operation.



FRONT TONE	
OFF	Standard sound quality without AESS (When set to OFF, only "REAR CUT" cannot be set.)
FLAT	Use AESS without changing sound quality.
HIGH	Emphasizes high frequencies.
LOW	Emphasizes low frequencies.
BPF	Attenuates high and low frequencies.
REAR TONE	
FLAT	Use AESS without changing sound quality.
HIGH	Emphasizes high frequencies.
LOW	Emphasizes low frequencies.
BPF	Attenuates high and low frequencies.
OFF	Clears high frequencies above 20kHz.
200Hz	Clears high frequencies above 200Hz.
REAR CUT	
1.5% - 10%	Cut-off level of the rear body speaker.
AESS PRESET	
OFF	Use AESS without changing the time delay.
1.2ms - 20.0ms	Refer to the time delay between the audio output of the various front speaker and the rear unit speaker.

Mode Indicator
The current operating mode is indicated by the color of the LED.

Mode	LED
Memory	Red
Run	Green
Stop	Yellow
Choke	Blue

CHRG button
Change the frequency or select Parameter memory channel when frequency is displayed.

PF01 button
In VFD mode, the frequency can be changed at 10% increments after pressing the LED.
In Memory Mode, press and hold for 5 sec to enter in 5% channel steps.

PF02 button
Press the green indicator between VFD mode and memory mode.
In Run mode, the frequency can be changed at 10% increments after pressing the LED. In STOP, the fan speed setting cannot be modified.

PF03 button
Press and hold the key to display the memory channel list screen.
Pressing and holding or scrolling and adding of second memory channel.

STOP button
Press the key to return to the previous screen.

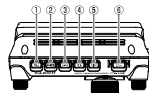
FREQ button
Press the **STOP** (C), **CHRG** (F), or **FREQ** (L) buttons within the 10 sec after stop to hold and perform the function and make settings.

To enter set-point screen, the set value points adjusting the current function according to or critical operating mode and parameter. (See Table 15)

MODE button
Change the frequency or select the memory channel when the frequency is displayed.

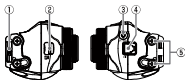
CHRG button
Change the frequency rate by selected in VFD mode.
When the frequency rate is selected in VFD mode, the frequency rate is changed in 10% increments after pressing the key.
When Memory Mode, press and hold for 5 sec to enter in 5% channel steps.
On the Setup Menu screen, when the touch is held enough for 2" compared to the Setup Menu, the screen:
-- **MODE** -- **CHRG** -- **STOP** --
-- **MODE** -- **STOP** -- **CHRG** --
-- **STOP** -- **MODE** -- **CHRG** --
-- **STOP** -- **CHRG** -- **MODE** --
-- **CHRG** -- **MODE** -- **STOP** --
-- **CHRG** -- **STOP** -- **MODE** --

Control Head (top)



- 1 Start/Stop**
 Start/Stop button (ignition master) function ON/OFF.
 For details on the function, refer to the On-Board Function Manual. Manual and CD may be downloaded from the website.
- 2 Power Window**
 Open/Close window setting system.
 1. Press the **POWER** button to select **POWER** (ON) window mode, and then press the **UP** button.
 2. Press the **POWER** button to select the **DOWN** mode from **UP** to **DN**, and then press the **DOWN** button.
 3. Continuously press **UP** or **DOWN** buttons for a short time to operate **POWER** window.
 * While holding the **UP** or **DOWN** buttons, pressing and holding the **POWER** button will set **POWER** and window mode to **LOCK** mode for 30 seconds.
- 3 Power Lock**
 Each time this key is pressed for a short time the immobilizer system changes.
 Model: **2012 ~ 2013** (1.4 ~ 1.8) ...
 Nissan, the immobilizer system is not installed with this key. For details, refer to the website. Or, when the immobilizer system is not installed, the key will not operate the immobilizer system.
 * Press and hold this key for a short time to return to the normal operation.
- 4 Power Mirror**
 The **POWER** button enables long-distance mirror adjustment in right communication systems, as the **POWER** button on the function side of the **POWER** button. Manual and CD may be downloaded from the website. (Press and hold this key again to return to the normal operation system.)
- 5 Power Seat**
 The **POWER** button function will increase extension (retraction) of the **POWER** seat, position seat, manual seat and other seats.
 * Press and hold this key for a short time to return to the normal operation.
- 6 Power Window**
 Select the operation mode.
 (1) Press the button (High-Speed) (Pressing at the bottom of the screen).
 (2) Press the button (Normal) (Pressing at the top of the screen).
 * Press and hold:
 Operation: High-Speed Frequency (at the top of the screen) or the Low-Speed Frequency (at the bottom of the screen).
 * Press and hold:
 Operation: High-Speed Frequency (at the top of the screen) or the Low-Speed Frequency (at the bottom of the screen).
 * Press and hold:
 Operation: High-Speed Frequency (at the top of the screen) or the Low-Speed Frequency (at the bottom of the screen).
 * Press the key again to return to the normal screen.

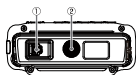
Control Head (Left and right side)



- ① Release knob
Press to release the control panel from the transmitter.
- ② Control head angle adjusting screw
Adjust the control panel angle. Refer to chapter 10 for details of the control panel angle.
- ③ MIC jack
Plug in the cable to connect with external GPS device. The communication head can be used at 900MHz.
- ④ Control head angle adjusting screw
Adjust the angle of the control head.

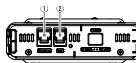


Control Head (rear)



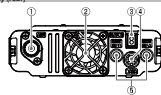
- ① CONTROL jack
Plug in the control cable into this jack to connect with the transmitter.
- ② Screw hole for bracket
Attach the optional control head bracket.

Main body (Front)



- ① CONTROL jack
Plug the control cable into this jack to connect with the transmitter.
- ② MIC jack
Connect the cable of the included GPS device (GPS-EDGE) or the optional microphone (MH-MOD2).

Main body (rear)



- ① **ANT terminal**
Connect the antenna cable for the antenna.
- ② **Cooling fan**
③ **DC**
Connect the provided DC power supply cable (left frame attached).
- ④ **DATA Jack**
Connect it to the network interface of the cable to connect with the PC (refer to and set the external terminal pin).
 - ① RJ45 (wired data port)
 - ② RS-485 (RS-485 for packet data output)
 - ③ RS-232C (serial control)
 - ④ RS-485 (RS-485 for packet data output)
 - ⑤ RS-232C (serial control)
 - ⑥ RS-485 (RS-485 for packet data output)
 - ⑦ STB (data communication control)

⑤ **SP A jack / STB B jack**
For connection with external devices, refer to the connection of each jack. See the following.

Terminal	Connection	External Device
SP A	SP A	SP A
STB B	STB B	STB B

The SP A jack is for connection with the SP A jack of the external device. The STB B jack is for connection with the STB B jack of the external device.

Microphone (SGM-852)



- 1 MIC**
Speak into the microphone during transmission.
- 2 TX LED**
LEDs indicate pressing PTT switch.
- 3 PTT**
Press and hold the PTT switch to transmit, and release to receive.
- 4 CHN**
Press this button to show the frequency or memory channel number by one step, press and hold it to show memory.
- 5**
On the memory channel, press the channel group to set the memory channel in 10 channel steps.
- 6**
On the Setup Menu, select press to go to the previous category of the Setup Menu.
- 7 Up**
Press the button to show the frequency or memory channel up by one step, press and hold it to edit memory.
- 8**
On the memory channel, press to set the memory channel in 10 channel steps. On the Setup Menu, press to go to the next category of the Setup Menu.
- 9**
Press the button to stop the receive audio. Press again to resume the audio.
- 10 DTMF keypad**
Press these keys during transmit to enter and send a DTMF sequence. The following operations can be performed during transmit:
 - 0-9 Enter the frequency or memory channel number.
 - A Adjust the squelch.
 - B Switch press switches between Main-band and Sub-band.
 - C Adjust the squelch level.
 - D The band edge function operates.
 - E Switch press switches between VFO mode and memory mode.
 - F Key this one same function as the microphone mode.

1) Program keys **F1** to **F12**

The default function settings of the **F1** to **F12** (**F**) keys are shown in the table below.

Key	Function	Key	Function
F1	HOME	F10	Lock on the left side of the window of the window
F2	SEARCH	F11	Lock on the right side of the window of the window
F3	PRINT	F12	Lock on the bottom side of the window of the window
F4	NUM LOCK	F13	Lock on the top side of the window of the window

The functions of the **F1** to **F12** (**F**) keys can be assigned by the following operations:

- Press and hold the **F** key.
- Press the **FNC** (Function) key.
- Press the **F1** to **F12** (**F**) key to select a function.
- Release the **FNC** (Function) key.
- Release the **F** key.

Function	Key
Home	F1
Search	F2
Print	F3
Num Lock	F4
Lock on the left side of the window	F10
Lock on the right side of the window	F11
Lock on the bottom side of the window	F12
Lock on the top side of the window	F13
Power	F14
Power	F15
Power	F16
Power	F17
Power	F18
Power	F19
Power	F20
Power	F21
Power	F22
Power	F23
Power	F24
Power	F25
Power	F26
Power	F27
Power	F28
Power	F29
Power	F30
Power	F31
Power	F32
Power	F33
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Power	F83
Power	F84
Power	F85
Power	F86
Power	F87
Power	F88
Power	F89
Power	F90
Power	F91
Power	F92
Power	F93
Power	F94
Power	F95
Power	F96
Power	F97
Power	F98
Power	F99
Power	F100

Main-Band / Sub-Band display area

Display mode (70 MHz and Memory Mode are switched each time the Mode area is touched)

Memory channels of the same frequency band are automatically grouped and labeled as follows by the MGC (Memory Grouping) function.

MALL Recalls all memory channels registered of frequency band.

M-ALL Recalls only memory channels in the All-Band (150 - 137MHz).

M-UP Recalls only memory channels in the Mid-Band (UP Band) (137 - 124MHz).

M-DN Recalls only memory channels in the Sub-Band (DN Band) (124 - 108MHz).

M-GRP Recalls only VHF and UHF memory channels (174 - 400MHz).

M-GRP Channels registered of the band can be registered in advance and called up as frequently used memory channels in the M-GRP.

M-GP MGC (Memory Grouping) Function

RTZ RTZ mode

HOME HOME Channel

+ Repeaters minus (-) auto

- Repeaters plus (+) auto

! Split operation

MEM Memo Memory Channel (Channels registering unselected channels to be skipped during scanning)

MEM Split function is activated

MEM MEMORY DCS ID is displayed

MEM TX DCS ID is displayed

MEM RX DCS ID is displayed

I Input Channels

Band: (Scanning)

Blue: Receiving (Digital CHFM mode)

Green: Receiving (Analog FM mode)

White: Receiving (Analog AM mode)

Channel type is displayed (For additional details, refer to the Alphanumeric Manual.)

TW TX - Tone Encoder (tone frequency is displayed)

TSD TXD - Tone Decoder (tone frequency is displayed)

RTN Reverse Tone (tone frequency is displayed)

DCS DCS - Digital Code Squelch (DCS code is displayed)

PR Pre-Registration Squelch

PRG Page (PTC)

PRG The frequency can be set after the search operation (see page 70) in "ON"

DC Send the DCS code only during conversation (DCS code is displayed)

T-D Send the CTCSS tone signal during transmit, and wait for the CTCSS tone in receive mode (tone frequency is displayed)

T-D Send the CTCSS tone signal during transmit, and wait for the CTCSS tone signal in receive mode (tone frequency is displayed)

Communication Mode (The Operating Mode switches each time the Mode key is touched.)

-  FM (Analog) mode
 Displays the operating mode (Digital modes are indicated by a red icon)
-  FM (Analog) mode
 FM mode (Communication mode)
-  FM mode (Communication mode)
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-  FM mode (Communication mode)

S meter (Displays received signal strength in 10 bars)

PTC meter (Displays transmit output in 3 levels when transmitting)

Volume level

SQL level

Descriptions of Main Screens

Normal screen (VFO screen)

Main-band and Sub-band are displayed in a top-down fashion. Both bands are received simultaneously. CPU digital signal display is available in both Main-band and Sub-Band.

Press the **MEM** key to display the PRG (Primary Memory Group) screen. The PRG screen, which displays the receive status of the registered channels in a bar graph, can register up to 50 channels by simply pressing and holding the **MEM** key for the current digital frequency other of the VFO or the memory channel.

The PRG screen auto mode and manual mode can be switched by press and hold the **DM** key.

• **Band Scope screen**

Press the **MEMO** key to display the Band Scope screen. The frequency of received signals above and below the current frequency or memory channel are shown in a graph while sweeping at high speed. The audio of the center frequency is heard without interruption.



- Rotate the **DIAL** knob to change the frequency or memory channel.
- In VFO mode, 21 or 23 channels can be searched in memory mode 21 or 11 channels can be searched by the Band Scope. (See "Change the number of channels displayed during scope operation" (page 12))

• **Function List screen**

Press the **FUNC** knob to display the "Function List" screen that displays only the registered items from the Setup Menu (see page 12). To return to the normal operation screen from the Function List, press the **CALL** or **PG** button.



By default, the following 10 setup items are registered in the Function List. Setup Menu items can be registered, unregistered, or changed at any time.

1. BAND	8. BAND
2. MODE	9. BAND
3. BAND	10. BAND
4. BAND	
5. BAND	
6. BAND	
7. BAND	

NOTE: The 42-VFO and HXMC-CH cannot be changed or unregistered.

• **Setup Menu screen**

Press and hold the **FUNC** knob to display the Setup Menu screen. The Setup Menu allows selecting various functions from the displayed list and then setting the parameters of each function according to individual preferences.





Press any key or knob, other than the **CALL** or **PG** button, to save the settings and return to normal operation.

• **Compass screen**

Touch the screen while receiving a CEM signal containing location information; the distance and direction of the other station will be displayed on the compass screen.



- **D**: Direction of the other station
- **A**: Heading direction of the station
- Touch the compass display to return to the previous screen.

- **BACKTRACK screen**
 Press and hold the **FUNC** knob -- (F **DISPLAY MODE**) -- (**BACKTRACK**)
 - **Real-time navigation function**
 Displays the position and direction of the other station in real time during communication in CWT signal (C mode). The signal of the other station must include GPS station information. It is also possible to select the display to show the traveling direction of your own station and the distance to the destination.
 - **BACKTRACK function**
 Register up to three locations ("A", "L1", "L2"), such as the departure point or the current location of the other station. Then, display and manage in real time the distance and direction of the registered location as viewed from the current location.
 - **Altitude screen**
 Press and hold the **FUNC** knob -- (F **DISPLAY MODE**) -- (**ALTITUDE**)
 The altitude versus the moving distance is displayed in 3-graph using the GPS signal.
 - **TIMER/CLOCK screen**
 Press and hold the **FUNC** knob -- (F **DISPLAY MODE**) -- (**TIMER/CLOCK**)
 CLOCK, LAP timer and Countdown timer functions are available.
 - **GPS information screen**
 Press and hold the **FUNC** knob -- (F **DISPLAY MODE**) -- (**GPS INFORMATION**)
 Check the status of signals received from GPS satellites and related information.
- About this manual**
- The following notation is also used in this manual.
-  This icon indicates cautions and information that should be read.
 -  This icon indicates notes, tips and information that should be read.
- PLEASE NOTE: Due to product improvements, some of the illustrations in the instruction manual may differ from the actual product.

Safety Precautions (Be Sure to Read)

Be sure to read these important precautions, and use this product safely. You are not held liable for any failure or accident caused by the use or misuse of the product by the purchaser or any third party, even if damage caused through the use of the product by the purchaser or any third party, except in cases where referred to pay damages under the law.

Types and meanings of the marks

DANGER This mark indicates an extremely hazardous situation, which, if not avoided, could result in death or serious injury.

WARNING This mark indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury or property damage.

CAUTION This mark indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury or property damage.

Types and meanings of symbols

These symbols signify prohibitions, which must not be done to use this product safely. For example, indicates that the product should not be disassembled.

These symbols signify removal actions, which must be done to use this product safely. For example, indicates that the power plug should be disconnected.

DANGER	
Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere.	Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere.
Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere.	Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere. Do not use the product in a potentially explosive atmosphere.
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WARNING	
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Installing the Radio

About the antenna

The antenna is an extremely important part for both transmitting and receiving. The antenna type and its inherent characteristics determine whether the performance of the transceiver can be fully realized. As such, please note the following:

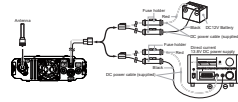
- Use an antenna that is suitable for the installation conditions and application objectives.
- Use an antenna that is suitable for the operating frequency band.
- Use an antenna and a coaxial cable with a characteristic load point impedance of 50Ω.
- Adjust the VSWR (Voltage Standing Wave Ratio) until it is 1.5 or less for an antenna with an adjusted impedance of 50Ω.
- Keep the coaxial cable routing length as short as possible.

Connection of Antenna and Power Cables

Please follow the outline in the illustration regarding the proper connection of antenna coaxial cables and Power Supply.

Caution

- Do not use a DC power supply cable other than the one that is provided.
- Do not use the DC power supply cable with the low hold-off rate.
- Never exceed power source capacity of supplying DC 13.8V, a current capacity of 15A or more.



Installing the Transceiver/Microphone
 The control head and main body are connected with a control cable.
 When needed, use the optional Control Cable 202 (20) to connect the main body to the
 "CONTROL" terminal of the control head. Connect the supplied microphone (SM2-82C) to the "MIC" terminal of the transceiver or
 control head.



Install the main body using the supplied bracket

1. Select the installation position.
2. Drill four-diam-diameter holes in the location where the bracket is to be mounted, matching the positions of the locking holes of the bracket.

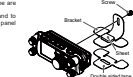
The bracket can be mounted on either the top or bottom side of the main body.

3. Insert the grooves on both sides of the main body into the bracket until they click and lock. Tighten the screw against the head to lock the transceiver in the bracket.

4. To remove the main body from the bracket, loosen the locking screws, and then pull the transceiver out while pressing the lever indicated by the arrow below.

■ Using the optional Dash Mount Bracket *HMB-102

- Screws, spacers and double-sided tapes are included with the bracket.
- The bracket can be followed by holes to match the location where the front panel is located.



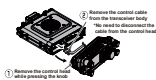
Using the optional Swing Head Kit "SJM-K-SD"

The optional control head extension cable "CT-132" is not required.

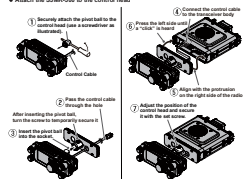
Please change the angle of the control head as shown left or right.

Remove the control head from the transceiver body

To install the SJM-K-SD Swing Head Kit, remove the control head from the transceiver body.



Attach the SJM-K-SD to the control head



Using a MicroSD Memory Card

Using a microSD memory card with the transceiver allows the following functions.

- Backing up the transceiver data and information
- Saving memory information
- Voice recording and playback
- Saving messages downloaded with the CM function or WRES-X function
- Saving GPS log data


Usable microSD Memory Cards

This transceiver only supports the following capacity of microSD and microSDHC memory cards.

*2GB *4GB *8GB *16GB *32GB

microSD memory cards that are not formatted with FAT32 may not properly work. Information when using memory cards formatted with FAT32 is as follows. For more information, please refer to the manual of the memory card. Do not use the transceiver for saving data to a microSD memory card in progress.

Mounting and Dismounting microSD Memory Card

1. Turn the transceiver OFF.
2. Insert a microSD memory card into the slot on the left side of the control panel.
With the terminal surface of the microSD card facing the back of the control panel, push it in gently until it clicks.
3. Turn the transceiver ON.
If the memory card is properly detected,  lights on the display.



- Removing the microSD memory card
To remove the microSD memory card (inserted in step 2 above), push the memory card in a sliding panel in front. Then remove the memory card.

Formatting a MicroSD Memory Card

Format a new microSD memory card following the steps below before use.

*A microSD memory card that has never been used in a recorder device may not function properly. For example, it may not be recognized by the FT-10100N/DC or reading and writing may have an unusual frequency. The eSATA Memory Card Formatter provided by the SD Association may format the FAT32 file system. For more information, visit the SD Association Web site (http://www.sdcard.org/downloads/formatter_4/).

Be sure to check for data loss before formatting.

1. Press and hold the FUNC knob.
2. Touch [109 FORMAT].
If [FORMAT] appears on the LCD.
3. Rotate the FUNC knob to select [DS], then press the FUNC knob.
Initialization starts and "Formatting..." appears.
4. When formatting is completed, a beep sounds and "Completed" appears on the LCD.

Functions to use as needed

Selecting the Communication Mode

Using AMS (Automatic Mode Select) Function

The PFM-5000DCI transceiver is supplied with the AMS (Automatic Mode Select) function which automatically selects the communication mode corresponding to the received signal.

To utilize the AMS function, press the **AMS** key repeatedly or touch the mode icon to display **AMS** on the display. When a signal is received, the communication mode is automatically switched and the communication mode display changes.

*The display differs depending on the received signal.

Press



Setting the transmit mode when using the AMS function

The AMS function will automatically set the received to the mode of the received signal, but the transmit mode may be fixed regardless of the received mode.

- Press and hold the FUNC knob.
- Select [AMS TX MODE].

Or make the FUNC knob to select [AMS TX MODE].

When press the FUNC knob.

When press the FUNC knob to select the desired transmit mode as follows: [TX FM FIXED] or [TX CW FIXED] and the AMS transmission mode is fixed. The "fix" at the top of the communication mode icon flashes.



Transmit Mode	Receive and Transmit
AUTO (Default)	Receive: Automatically selects the receive mode corresponding to the received signal. Transmit: Automatically switches to the communication mode selected by the AMS function.
TX FM FIXED	Receive: Automatically selects the receive mode corresponding to the received signal. Transmit: Always transmits in an analog FM mode.
TX CW FIXED (TX OFF)	Receive: Automatically selects the receive mode corresponding to the received signal. Transmit: Always transmits in the CW mode.

- Press and hold or touch either the **AMS** key or **AMS** key to save the settings and return to normal operation.

Fixing the Communication Mode

To fix the transmit operation mode, press the **MODE** key or touch the mode icon to select the communication mode. When the AMS function is OFF, the "AMS" above the mode icon disappears.



Communication Mode	Icon	Characteristics
CELEBRATION™ (Voice & Data and transmission) (Standard)		This is the standard digital mode. Only on this mode is transmission caused by detected local activity of the received digital voice signal.
DMR (2-Tone) (Data and Voice Mode)		High speed data communication using voice, 12.5 kHz and 6.25 kHz. Supports dual time slot transmission.
DTX mode		Enabling communication using DTX mode.
AM mode (receive only)*1		The AM mode is for receive only.

*1 When the Set Mode (14 DIGITAL VO) is set to "ON" (factory default is "OFF"), the Voice PR mode (DVI) may be selected.
*2 When the Set Mode (16 RX MODE) is set to "ALTY" (factory default setting), AM mode is automatically selected when the AM is selected.

The transceiver automatically switches to the Data PR mode (DVI) mode during image transmission.

Changing the Transmit Power Level

With the factory settings, the transmit power level changes from "HIGH" to "LOW" to "MID" when the microphone (P4) key is pressed (see the table below). The transmit power level can also be changed using the Function List.

- Press the **FUNC** knob.
- Touch **TXPRW**.
- Rotate the **FUNC** knob to select transmit power output.
HIGH → LOW → MID



Press any key, knob or **PTT** switch, other than the **FUNC** knob and **MAIN VOL/SQL** knob or **PTT** key and **PTT** key to save the settings and return to normal operation.
Display of PWR meter during transmission.

HIGH (50W/40W/30W/20W/10W)	MID (20W)	LOW (5W)

* The factory setting is "HIGH".
 The transmit power output can be set individually for each frequency band and memory channel in each of Manual and Channel.

Setting the Skip Band

Set the band selected when the **SKIP** key is pressed. By storing frequently used frequencies in the memory channels, while setting the band skip, can be recall the memory that stores the frequencies of the bands that cannot be selected.

1. Press and hold the **SKIP** key in VFO mode.
Or, press and hold the **FUNC** knob -- **DA BAND SKIP**
2. Rotate the **FUNC** knob to select the band to set and press the **FUNC** knob. -- see "BAND" (selectable in "OFF")
3. Rotate the **FUNC** knob to set "ON" (selectable in "OFF") (not selectable)
4. Press any key or knob, other than the **SKIP** knob or **FUNC** knob, to save the settings and return to normal operation.



Changing the Frequency Step

The **DIAL** knob rotation frequency step may be changed. Normally, use the factory default setting of "AUTO".

1. Press and hold the **FUNC** knob.
2. Touch **33 STEP**.
Or rotate the **FUNC** knob to select **33 STEP**, then press the **FUNC** knob.
3. Rotate the **FUNC** knob to set the frequency.
4. Press any key or knob, other than the **SKIP** knob or **FUNC** knob, to save the settings and return to normal operation.



i The default setting of the frequency step is set to "AUTO", which automatically provides a suitable frequency step according to the frequency band.
The frequency step that can be selected depends on the frequency band.

Change the frequency display color of the operation band.

The display color of the frequency of the operation band can be selected from "white", "blue" and "red".

1. Press and hold the **FUNC** knob.
2. Touch **3 FREQUENCY COLOR**.
Or rotate the **FUNC** knob to select **3 FREQUENCY COLOR**, then press the **FUNC** knob.
3. Rotate the **FUNC** knob to select the display color.
"WHITE" -- "BLUE" -- "RED"
4. Press any key or knob, other than the **SKIP** knob or **FUNC** knob, to save the settings and return to normal operation.



Using the convenient Digital C4FM features

About the Digital Group ID (DG-ID) feature

Digital Group ID (DG-ID) function allows using the two-digit ID numbers to communicate only with specific group members. The default DG-ID number from '01' to '99' is set in advance by all the group members. This ID number may be set separately for transmit and receive, when the same ID number is set for both transmit and receive, only group members with the same ID number will be heard. This feature may be used to limit communication only to group members that have the same DG-ID number. The CM function may also be utilized to automatically monitor whether or not group member stations with the same DG-ID number are operating within communication range.

The DG-ID number ID detects signals with all ID numbers. Normally setting the ID number to '00' for both transmit and receive will permit reception of the signals from all other stations using the digital C4FM mode, regardless of the transmit DG-ID number settings of the other stations.

Also note that when the receive DG-ID number of this transceiver is set to a DG-ID number other than '00', received signals that do not have the same DG-ID number may not be heard.




When accessing a C4FM digital repeater controlled by a DG-ID number, set the transmit DG-ID number of the **PTM-SHOWIDE** to that of the repeater first. Even in that case, if the receive DG-ID number of the **PTM-SHOWIDE** is set to '00', all the downlink signals from the repeater may be received.

Communicating with the DG-ID feature

*Digital C4FM mode transceiver compatible with the DG-ID function are required in order to utilize this function.

*If the transceiver is not compatible with the DG-ID function, update to the latest firmware to use the DG-ID function. The latest firmwares is available on the VME52 website.

Setting the transmit and receive DG-ID number to '00' to communicate with all other stations using C4FM digital mode.

1. Press and hold the **MEMO** key.
The DG-ID number screen will be displayed.
While setting the DG-ID number, pressing and holding the **FUNCK** key will set the transmit and the receive DG-ID number to '00'.

2. If the transmit DG-ID (DG-ID TX) number is not set to '00', press the **FUNCK** knob, and then rotate the **FUNCK** knob to set '00'.

3. Press the **MEMO** key and rotate the **FUNCK** knob to select the receive DG-ID (DG-ID RX).
4. If the receive DG-ID number is not set '00', rotate the **FUNCK** knob, then rotate the **FUNCK** knob to set '00'.

5. Press any key or knob, other than the **MEMO** key, to save the settings and return to normal operation.

Press and hold

MEMO

FUNCK

FUNCK

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FUNCK

- To check whether or not other stations are operating within communications range, press the **GM** key to turn the GM (Group Monitor) function ON.
 - The other stations must also have the GM (Group Monitor) function ON.
 - Refer to the separate Operating Manual GM Edition for details on how to use the GM function (download the manual from www.kenwood.com).
- Press the **GM** key to turn the GM (Group Monitor) function OFF and return to normal operation.
 - If the remote DCS-D is set to a transmit power of 100, only stations with the DCS-D set to received Normal¹ will be received. DCS-D number is 100, except when communication is shared only with group members.
 - The transmit and receive DCS-D default number is set to 100.

Communicate only with the specific members by setting the DCS-ID number except for "00".

Example set the DCS-ID number of to "50"

Press and hold the **GM** key.
The DCS-ID number setting screen will be displayed.

While setting the DCS-ID number, pressing and holding the **FUNC** key will set the transmit and the receive DCS-ID numbers to "00".



- Press the **FUNC** key, and then rotate the **FUNC** knob to set transmit DCS-ID (DCS-ID TX) number to "50".
- Press the **FUNC** key again, then rotate the **FUNC** knob to select the receive DCS-ID (DCS-ID RX).



- Press the **FUNC** key, and then rotate the **FUNC** knob to set receive DCS-ID (DCS-ID RX) number to "50".
- Press any key or knob, other than the **GM** key or **FUNC** key, to save the settings and return to normal.



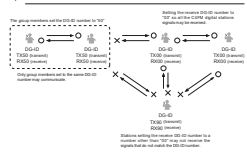
Setting to the same frequency and setting the same DCS-ID for all the group members will enable communication between the members and outside other signals.

- Press the **GM** key to turn the GM (Group Monitor) function ON. Check whether or not other stations that are operating on frequency with the GM (Group Monitor) function ON, and have the same DCS-ID number setting, are in the communication range.
- The other stations must also have the GM (Group Monitor) function ON.



6. Press the **GM** key to turn the GM (Group Monitor) function OFF and return to the normal operation.
 While operating in the GM function, the call sign and the signal strength of a maximum of 24 stations with the GM function turned ON, and that are within the communication range, may be checked.

! For details on how to set each item, refer to "ITEM-5 (GROUP) GM Function Instruction Manual" which is available on the YAESU website.



Repeater Operation

Communicating Via the Repeater

The transmitter includes an ARS (Automatic Repeater Shift) function which automatically sets the receiver to the repeater frequency when the transmitter is locked to the repeater frequency.

1. Set the receive frequency to the repeater frequency.¹
or ² "ARS" on top of the display. (See Setup Menu)
2. "V" or "R" and "TX" icons may automatically appear above the frequency.
3. Speak into the microphone while pressing and holding the PTT switch.



Reverse Function
The "reverse" state temporarily reverses the transmit and receive frequencies. This allows checking to find if direct communication with the other station is possible.

1. Press the **FUNC** knob.
2. Touch **[RPT-R]** or **[RPT-R]** knob to select (RPT-R). Then press the **FUNC** knob.
* The transmit and receive frequencies are temporarily reversed (reverse state).
* In the "reverse" state, the "V" or "R" blinks on the display.
3. To release the reverse state, repeat the above steps again.



¹ The repeater settings may be changed from the Setup Menu.
Setup Menu (2) [PPT] [SR] To check setting the repeater with success.
Setup Menu (2) [PPT] [SR] [FREQ] Always change the repeater with offset.
Function Menu (2) [ARS] The ARS function may be set to OFF.
Function Menu (2) [R] CTCSX Tone Frequency

Tone Calling (1750 Hz)
If your transmitter is FTM-5002E (European version), press and hold in the [P6] key on the microphone (in factory default setting) to generate a 1750 Hz tone to access the European repeater. The transmitter will automatically be activated, and a 1750Hz audio tone will be superimposed on the carrier. Once access to the repeater has been gained, you may release the switch, and use the switch for activating the transmitter thereafter. If you need to access the repeater which requires a 1750Hz tone tone for access by the FTM-5002E (Distribution terminals), you can set the program key on the microphone to serve as a "T-CALL" key (optional). To change the configuration of the switch, use setup menu (2) [MC PROGRAM KEY].

Using the Memory

The **FM-BROADCAST** mode stores a large number of memory channels that can register the operating frequency, communication mode, and other operational information.

- 999 Memory Channels
 - 4 Home Channels
 - 99 user PS-Memory Channels
- The **MTC (Memory Auto Grouping)** function can automatically recall a list of memory channels from the user frequency band as group.
- The **PS-M (Priority Memory Search)** function displays the status of registered frequently used frequencies (received signal strength) in a bar graph.
- The operating frequency and other operational information can be registered to each regular memory channel, home channel, or PS-M memory channel.
- Operating frequency
 - Communication Mode
 - Memory tag
 - Receiver's step
 - Transceiver output
 - Tone Information
 - Repeaters Shift
 - TRFMS (SSA)
 - Tone Information
 - DCS Information
 - Memory channel skip information

NOTE
Both of the stored contents to a memory channel. For details, see loading up to a memory channel in the **Manual** for details on loading up to a memory channel.

Writing to memory

1. Set the frequency to write to memory.

2. Press and hold the **MEM** key. The memory channel list appears.

The memory channel list can also be displayed by the following operations: → touch **MEMORY** → touch **MEMORY LIST**

The latest available number is selected. To select another channel, rotate the **FUNCK** knob to select the memory channel number to be written.

Rotate the **SUB-DIAL** knob, or press the **[LPT]** or **[DYN]** key on the microphone to feed-forward to the 10-channel steps.

Press the number keys on the microphone to quickly select a memory channel as shown in the example below.

Press the **[1]** key (Memory channel 001).

Press the **[A]** key (PS-Memory channel L01).

When **MEM** at the top of the memory channel list is selected, the **HOME** channel of the current frequency band can be overwritten.

For already written memory channels, the writing frequency is displayed.



- Press and hold the **MEM** key.
Or press the **FUNC** knob to display a screen. Make sure the **WRITE** is highlighted and press the **FUNC** knob. If you attempt to register a frequency to a memory channel that already contains frequency data, **WRITE** will appear on the screen. Rotate the **FUNC** knob to select **DEL**, then press the **FUNC** knob to delete the memory channel.
 - The memory is stored, and the screen returns to the previous screen.
- Recall memory (there are three ways)**
- (1) Press **MEM** or touch **MEM** to recall**
- Press the **MEM** key or touch **MEM**.
 - The list of memory channels is recalled.
 - Rotate the **DIAL** knob to select the memory channel to recall.
Press and then turn the **DIAL** knob to select in 10 channel steps.
 - Press the **MEM** key again or touch **WRITE**, **DEL**, **DEL**, **DEL**, **DEL**, **DEL**, or **DEL** to return to VFO mode.
- (2) Press the **FUNC** knob to recall from the function menu**
- Press the **FUNC** knob.
 - Touch **MEM**.
 - Or rotate the **FUNC** knob, select **PREV**, then press the **FUNC** knob to display the direct frequency input screen.
 - Touch **MEM LIST**.
 - Or rotate the **DIAL** knob to select **MEM LIST** then press the **DIAL** knob to display the memory channel list.
- The memory channel list can also be displayed by the following operation.
- Press and hold the **FUNC** knob → touch **MEMORY LIST**.
- (3) Rotate the **FUNC** knob, select the memory channel to recall.**
- Rotate the **SUB DIAL** knob, or press the **UP** or **DOWN** key on the microphone to fast-forward or 10-channel steps.
 - Press the marked key on the microphone to quickly select a memory channel as shown in the example below: Press the **MEM** key. Memory channel **MEM**.
 - Press the **MEM** key. A screen with **MEM** highlighted appears. Press the **FUNC** knob or touch **MEM**.
- The selected memory channel will be recalled.



3) Recalling a memory by directly entering the channel number

■ **Recalling a memory on the keypad screen**

1. Press the **FUNC** knob.
2. Touch **KEYPAD**.
Or rotate the **FUNC** knob, select **KEYPAD**, then press the **FUNC** knob to display the direct frequency input screen.
3. Touch **MEM CH**.
Or rotate the **DIAL** knob, select **MEM CH**, then press the **DIAL** knob to display the memory channel number input screen.
4. Touch or rotate the **DIAL** knob to select a memory channel number, then press the **DIAL** knob.
(Example) When recalling memory channel "123"
Rotate the **DIAL** knob to select [1] → Press the **DIAL** knob
Rotate the **DIAL** knob to select [2] → Press the **DIAL** knob
Rotate the **DIAL** knob to select [3] → Press the **DIAL** knob
(Example) When recalling memory channel "45"
Rotate the **DIAL** knob to select [4] → Press the **DIAL** knob
Rotate the **DIAL** knob to select [5] → Press the **DIAL** knob



■ **Recalling a memory by directly inputting channels using the numeric keys on the microphone**

- Press the numeric keys "0" to "9" in the memory mode to enter the memory channel.
(Example) When recalling memory channel "123"
Press the [1] → [2] → [3] key.
(Example) When recalling memory channel "16"
Press the [1] → [6] key.
Press and hold any numeric key.



1. Press the **PTT** switch while entering a number to cancel the entry.



Copy memory channel information to VFC

Press and hold the  key while recalling memory. Copy the contents of the recalled memory channel to the VFC and enter VFC mode.



Displaying a list of memory channels in memory mode

Turning the DIAL knob in memory mode usually increases or decreases the memory channel number. Rotating the DIAL knob automatically displays the memory channel list and allows you to recall the desired memory channel while checking the contents of multiple memory channels.

1. Press and hold the **FUNC** knob.
 2. Turn **D1 MEMORY LIST MODE**.
Or rotate the **FUNC** knob to select the **D1 MEMORY LIST MODE**, and then **FUNC** knob.
 3. Rotate the **FUNC** knob to set **ON**.
 4. Press any key or knob, other than the  or  key to save the settings and return to normal operation.
- To return to normal up/down operation, set **OFF** in step 3 of the above operation.

Recall only memories in the same frequency band (Band) using the MAG (Memory Auto Grouping) function
 With the MAG (Memory Auto Grouping) function, only memory channels in the same frequency band (band) can be called. In the memory mode, each time the **MEM** key is pressed, only memory channels of the specified frequency band are automatically recalled as a group, as shown below.



*When "MEM" is selected, the MAG function is turned OFF and all memory channels can be recalled.
 * "MEM" allows grouping frequently used memory channels regardless of frequency band. A group is recalled regardless of the OFF Memory Group. "MEM" and "MEM" will be displayed.

Group	Selectable Memory Channels
MEM	All memory channels
MEM	APF band (100 - 127MHz) memory channels only
MEM	144MHz band (135 - 174MHz) memory channels only
MEM	453MHz band (450 - 505MHz) memory channels only
MEM	17.4MHz to 453MHz Memory channels
MEM	Frequently used memory channels regardless of the frequency band. can be registered in advance, and called up in the OFF Memory Group.

Refer to the user page for instructions to register with the OFF

Registering frequently used memory channels in M-GRP (Memory Group)

1. Press and hold the **MEM** key in VFC or memory mode. The memory channel list is displayed. The memory channel list can also be displayed by the Press the **FUNC** knob → Touch **KEYPAD** → Touch **MEM LIST**.



2. Rotate the **FUNC** knob to select the memory channel to be registered in the M-GRP, then press the **FUNC** knob.



3. A pop-up screen will appear, then touch **[M-GRP ON]**. Or rotate the **FUNC** knob to select **[M-GRP ON]**, then press the **FUNC** knob.



The memory channel numbers registered in the M-GRP are changed in white to blue.



Unregistering memory from M-GRP (Memory Group)

1. Press and hold the **MEM** key in VFC or memory mode. The memory channel list is displayed. The memory channel list can also be displayed by the Press the **FUNC** knob → Touch **KEYPAD** → Touch **MEM LIST**.



2. Rotate the **FUNC** knob to select the memory channel to be unregistered.

3. Press the **FUNC** knob.

4. A pop-up screen will appear, then touch **[M-GRP ON]**. Or rotate the **FUNC** knob to select **[M-GRP ON]**, then press the **FUNC** knob.



Edit memory

■ Edit memory tag
 Memory name tags, such as a call sign or broadcast station name may be assigned to the memory channels and some channels. Input a memory tag using up to 16 characters. Alphabetic characters (upper and lowercase), numbers and symbols may be entered to the memory name tag.

1. Press and hold the **MEMO** key.
 The memory channel list appears. The lowest available number is selected.

The memory channel list can also be displayed by the following operation:
 Press the **FUNC** key → Touch **KEYPAD** → Touch **MEMO LIST**

2. Rotate the **FUNC** knob to select the memory channel for editing the memory tag. Then press the **FUNC** knob. Rotate the **SUB DIAL** knob, or press the **UP** or **DOWN** key on the microphone to fast-forward in 10-character steps.



3. A keypad will appear. Touch **EDIT** or rotate the **FUNC** knob to select **EDIT**, then press the **FUNC** knob. The memory information appears.

4. Touch **TAG**.
 Or rotate the **FUNC** knob to select **TAG**, then press the **FUNC** knob.

- The character input screen is displayed. Rotate the **FUNC** knob to select a character, and press the **FUNC** knob to enter the character.
 - Press the **DOWN** key to move the cursor to the left.
 - Press the **UP** key to move the cursor to the right.
 - Display the alphanumeric keypad input screen.
 - Display the numeric keypad input screen.
 - Rotate the **DIR** knob to select the character.
 - Rotate the **DIR** knob to select the character to the left of the cursor and move the cursor to the left.
- See "Text input screen" on page 81 to input a memory tag.
- When text is complete, press and hold the **FUNC** knob to save the characters and return to "MEMORY INFORMATION" screen.
 - Touch **OK**.
 - Or rotate the **FUNC** knob to select **OK**, then press the **FUNC** knob.
 - A confirmation pop-up appears. Touch **OK** or select **OK**, then press the **FUNC** knob to complete the memory tag entry.



i The Memory tag is only displayed on the operating band (upper section on the display).

• Clearing Memories

- Press and hold the **FUNC** knob.
The memory channel disappears. The lowest available channel is selected.
The memory channel list can also be displayed by the following procedure.
Press the **FUNC** knob → Touch **KEYPAD** → Touch **MEM LIST**.
- Rotate the **FUNC** knob to select the memory channel from which the data is to be deleted, and press the **FUNC** knob.
• Rotate the **SUB DIAL** knob, or press the **UP** or **DOWN** key on the microphone to fast-forward in channel steps.
- A screen will appear. Touch **DELETE** or rotate the **FUNC** knob to select **DELETE**, then press the **FUNC** knob.
Confirmation screen "DELETE?" is displayed.
Rotate the **FUNC** knob to select **OK**, then press the **FUNC** knob.



i Data on memory channel Ch4, and the Home channel may not be deleted.

Recalling the Home Channels

Recall from the Function List

1. Press the **FUNC** knob.
2. Touch **HOME CH**.
Or rotate the **FUNC** knob, select **HOME CH**, then press the **FUNC** knob.
3. Or press and hold the **FUNC** knob → **to HOME CH** → **HOME** and the home channel frequency of the currently selected band appears on the LCD.



Recall with the programmable key on the microphone

1. Press the **PTT** key on the microphone.
* This is the factory setting. This function can also be assigned to the **PL**, **PL** or **PL** key (see page 29).
* **HOME** and the home channel frequency of the currently selected band appears on the LCD.
2. Press the **PTT** key again, to return to the previous frequency.



While recalling the home channel, rotate the **DIAL** knob to input the home channel frequency to the operating band.

Changing the Home Channel Frequency

1. Set the frequency and the operating mode to be stored as a home channel.
2. Press the **FUNC** knob.
Or press and hold the **KEYPAD** key and proceed to step 5.
3. Touch **KEYPAD**.
Or rotate the **FUNC** knob to select **KEYPAD**, then press the **FUNC** knob.
The frequency input screen appears.
4. Rotate the **DIAL** knob to select **MEM LIST**, then press the **DIAL** knob.
The memory channel list appears.
5. Rotate the **FUNC** knob to select **HOME** displayed at the top of the memory channel list.
* Rotate the **SUB DIAL** knob, or press the **UP** or **DOWN** key on the microphone to fast-forward to **Channel** mode.
* Press the **FUNC** knob to display a prompt.
6. Rotate the **FUNC** knob to select **WRITE**, then press the **FUNC** knob.
Confirmation screen "OVER WRITE" is displayed.
7. Rotate the **FUNC** knob to select **OK**, then press the **FUNC** knob.
The contents of the home channel are changed and the previous screen returns.



Split Memory

Two different frequencies, one for receive and another for transmit, can be registered to a memory channel.

1. Register the receive frequency to a memory channel first.
For additional details on registering to a memory channel, refer to page 48. To add a memory channel that has already been written, go to step 2.
2. Press and hold the **MEM** key.
The memory channel list appears.

The memory channel list can also be displayed by the following operations:

1. Press the **FUNC** knob → Touch [MEM/FAC] → Touch [MEM LIST]

3. Rotate the **FUNC** knob to select the channel number that the receive frequency was registered to on step 1, and press the **FUNC** knob.

4. Touch [EDIT].
Or rotate the **FUNC** knob to select [EDIT], then press the **FUNC** knob.



5. Touch [TX FREQ].
Or rotate the **FUNC** knob to select [TX FREQ], then press the **FUNC** knob.



6. Set the transceiver to the desired transmit frequency.

7. Touch [OK].
Or rotate the **FUNC** knob to select [OK], then press the **FUNC** knob.

8. Confirmation screen is displayed, touch [OK] or press the **FUNC** knob.

The display returns to the memory channel list screen, and the receive frequency is displayed on the upper side, and the transmit frequency is displayed on the lower side.



9. Press any key or knob, other than the **MEM** key or **EDIT** key to save the settings and return to normal operation.

When enabling the split memory, **LS** is displayed on the LCD.



1. Write operating the split memory, to reveal the transmit and receive frequencies, press the **FUNC** knob → [PPT/PT].
When selecting the frequency, [T] will also.

Scanning Function

The FPM-610CRDDE supports the following three scanning functions.

- VFO Scan
- Memory Scan
- Auto PTT (Programmable Memory Scan)

VFO Scan / Memory Scan

To find frequencies where there are signals in VFO mode or Memory mode.

1. Press the **CD** key to set the band to be scanned as the operation mode.

2. Press the **MEM** key to select the "VFO mode" or "Memory mode".

3. Press the FUNC knob → Touch "SCAN".

Or press the FUNC knob → "SCAN" → Press the FUNC knob.

Or press and hold the microphone [UP or DOWN] knob to start scanning.

If the DIAL knob is rotated while scanning is in progress, the scanning will continue up or down in frequency according to the direction of the DIAL knob rotation.

When a signal is received, the scan pauses, the frequency buffers, and the scan starts again after about 3 seconds. In the USA version, the scan will continue to pause while receiving the signal.

■ Stop scanning

1. Press the FUNC knob → Touch "SCAN".

Or press the FUNC knob → "SCAN" → Press the FUNC knob.

Or press PTT or the [UP] [DOWN] key on microphone.

If the scan has paused on a signal, rotating the DIAL knob will cause scanning to resume.

If the transmitter is turned OFF while scanning, when the transmitter is turned ON, scanning will resume.

Each time the Transceiver List or Group Menu during scanning, the SCAN items are automatically selected and you cannot select any other item.



Setting the Receiver Operation When Scanning Stops

1. Press and hold the FUNC knob.

2. Touch [BS SCAN RESUME].

Or rotate the FUNC knob to select [BS SCAN RESUME].

Then press the FUNC knob.

Rotate the FUNC knob to select the hold time after the scan is resumed.

• BUSY
The signal is received until the signal fades out. Two seconds after the signal fades out, scanning resumes.

• HOLD
Scanning stops and tuning remains on the current receive frequency (Scanning does not resume).



- 4 sec / 2 sec / 8 sec
The signal is received for a specified period of time, and then scanning resumes.
Factory default setting: 4SEVY.

4. Press any key or knob, other than the **ESC** **MEM** **MEM** key, to save the settings and return to normal operation.

i The above settings are common for YFO scan, memory scan and PMS (Programmable Memory Scan).

Skip Memory Channels

Each memory channel can be set to be skipped during memory scan.

1. Press and hold the **MEM** key.
The memory channel list appears.

i The memory channel list can also be displayed by the following operations:
Press the FUNC key → Touch (KEYPAGE) → Touch (MENU LIST)

2. Rotate the FUNC knob to select the memory channel number that you do not want to scan, and press the FUNC knob.
3. Touch (EDIT)
Or rotate the FUNC knob to select (EDIT), then press the FUNC knob.
4. Touch (SCAN)
Or rotate the FUNC knob to select (SCAN), then press the FUNC knob to select (NO).
5. Touch (OK)
6. When the confirmation screen is displayed, touch (OK) or press the FUNC knob.
When the memory channel set as the skip memory is called, the **MEM** icon is displayed.

i To cancel the skip memory, set it to "YES" in step 5 above.

PMS (Programmable Memory Scan)

This function scans only the range of frequencies between the lower and upper limits registered in a set of PMS (Programmable Memory channel). 50 sets of PMS memory channels (L01L01 to L05L50) are available.

i For additional details on the PMS (Programmable Memory Scan) and Memory Bank Scan, refer to the Appendix Manual section for an downloaded from the "Home website".

Convenience Features

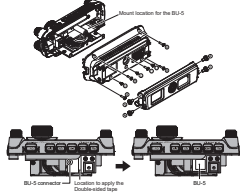
Bluetooth Operation

The **F18-5120/DC** can be equipped with the Bluetooth function by installing the optional Bluetooth unit **BU-5**. Hardware operation is possible using the optional Bluetooth headset **SSM-8120** or a commercially available Bluetooth headset.

! The operation of all commercially available Bluetooth headsets cannot be guaranteed.

Installing the Bluetooth unit "BU-5"

1. Turn the intercometer OFF.
2. Unplug the control cable from the Control Head.
3. Remove the 4 screws (B, the figure below) from the Control Head.
4. Remove the 3 screws (E, C and D in the figure below) from the Control Head and then carefully fit the back cover of the front panel.
5. Apply the double-sided tape onto the white frame on the board. (Shown below).
Double-sided tape is included with the BU-5.
6. Align the BU-5 connector with the connector on the board and install.
7. Carefully attach the back cover and secure it with the 12 screws.



Pairing the Bluetooth Headset

When using the Bluetooth Headset for the first time, the Bluetooth Headset and the ETM-4500000 must be paired.
This step is only necessary when first connecting the headset.

1. To start the Bluetooth headset in pairing mode:
 - Press and hold the Multi-Function Button for 3 seconds, until the **SSM-BT20** LED starts red/blue alternately.

Bluetooth
and then



2. Press and hold the **FUNC** knob.
3. Touch [BT Bluetooth].
Or rotate the **FUNC** knob to select [BT Bluetooth], then press the **FUNC** knob.



4. Press the **FUNC** knob and set [Bluetooth] to 'ON'.
The settings menu are displayed.
5. Press the **FUNC** knob.
6. Rotate the **ESLAC** knob to select [DEVICE], then press the **FUNC** knob.



7. Press the **SUB DIAL** knob.
The search starts, and the model name of the found Bluetooth device is displayed in the list.
8. When the **BT** is connected is displayed, press the **FUNC** key to stop searching.



9. Rotate the **FUNC** knob to select the Bluetooth headset to be connected.
10. Press the **SEL DIAL** knob.
11. Rotate the **SEL DIAL** knob to select **(CONNECT)**.
12. Press the **SEL DIAL** knob.
13. To return to the normal operation screen:
 - While connected to a Bluetooth headset, the **BT** icon lights up on the **FTM-510RDE** screen, and the ringing audio and vibration timer will be heard from the Bluetooth headset.
 - When the connection is complete, the **DEVICE** list will display "Name of the connected Bluetooth headset" and the **(STATUS)** list will display "Connected".
 - The LED of **SSM-BT20** blinks blue. The pairing is completed.



- **Disable the Bluetooth function**
To cancel the Bluetooth operation, just repeat the above procedures, selecting "OFF" in step 4 above.
 - **Subsequent Bluetooth headset connection when the power is turned ON**
When the power is turned **OFF** while the Bluetooth headset is connected, the next time the power is turned **ON**, the same Bluetooth headset is searched for and automatically connected when found.
 - If the Bluetooth headset cannot be found, the **BT** icon blinks on the screen. If the power of the same Bluetooth headset is turned **ON** in this state, it will connect automatically. If not, turn the **FTM-510RDE** and Bluetooth headset **OFF** and then **ON** again.
 - To connect to other Bluetooth headsets, refer to "Connect with another Bluetooth headset" on page 64.



**Transient operation by pressing the button on the Bluetooth headset
(when the VOX function is OFF)**

When the VOX function is OFF, pressing the "Call button" on the Bluetooth headset once will engage the FTM-SIGORDE in transient, and then a call can be made using the Bluetooth headset.
Press the "Call button" again to return the FTM-SIGORDE to receive.
*The button name may differ depending on your Bluetooth headset.

SSM-BT20 When the Multi-Function Key is pressed, a beep will sound and the FTM-SIGORDE will automatically transmit. Press the Multi-Function Key again, a beep will sound and the FTM-SIGORDE will return to receive mode.



Hands-Free VOX operation with a Bluetooth headset

When FTM-SIGORDE VOX (automatic voice transmission) function is turned ON, the Bluetooth headset can perform hands-free operation and transmit automatically just by talking. Turn the VOX function ON according to "VOX Operation" instructions.

! The VOX function is currently used for the Bluetooth headset and microphone. You can not use the Bluetooth headset and do not need to use the VOX function with the smartphone, see this to "OFF".

VOX Operation

Using a Bluetooth headset, you can transmit hands-free automatically, just by speaking into the microphone.

Setting VOX function

1. Press and hold the FUNC knob.
2. Touch [1] VOX.
Or rotate the FUNC knob to select [1] VOX, then press the FUNC knob.
3. Rotate the FUNC knob to select [VOX], then press the FUNC knob.
4. Rotate the FUNC knob to select "LOW" or "HIGH".
OFF: VOX function OFF
LOW: VOX function ON (VOX Gain Level: LOW)
HIGH: VOX function ON (VOX Gain Level: HIGH)

When set to "LOW" or "HIGH", the sound is automatically transmitted by voice from the connected Bluetooth headset. When not connected to a Bluetooth headset, the sound from the microphone is automatically transmitted.

5. Press any key or knob, other than the or key to save the settings and return to normal operation.
- **Disable the VOX function**
To cancel VOX and return to PTT operation, just repeat the above procedures, selecting "OFF" in step 4 above.



Set the VOX (Voice Operated Transmitt) delay time

During transmissions using the VOX (Voice Operated Transmitt) function, set the time to return to receive when speaking is paused.

1. Press and hold the FUNC knob.
2. Touch [11 VOX].
Or rotate the FUNC knob to select [11 VOX], then press the FUNC knob.
3. Rotate the FUNC knob to select [DELAY], then press the FUNC knob.
4. Rotate the FUNC knob to select the delay time (the handset-release delay after the cessation of speech).
0.5sec / 1.0sec / 1.5sec / 2.0sec / 2.5sec / 3.0sec
Factory default value: 2.0sec
5. Press any key or knob, other than the **FUNC** knob, to save the settings and return to normal operation.



Connect with another Bluetooth headset

1. Turn the Bluetooth headset you are currently using OFF.
2. Press and hold the FUNC knob.
3. Touch [11 Bluetooth].
Or rotate the FUNC knob to select [11 Bluetooth], then press the FUNC knob.
4. Rotate the FUNC knob to select [DEVICE], then press the FUNC knob.
5. Rotate the SUB DIAL knob to select [SEARCH], then press the SUB DIAL knob.
Search Bluetooth devices to display them in the device list in the following order:
(1) Already registered, unpaired and found
Bluetooth devices while letters
(2) Already registered and found by search
Bluetooth devices while letters
(3) Already registered but not found by search
Bluetooth devices while letters
Bluetooth devices: gray letters
6. When the headset to be connected is displayed, press the **FUNC** knob to start searching.
7. Rotate the FUNC knob to select the desired Bluetooth device.
8. Press the SUB DIAL knob.
9. Rotate the SUB DIAL knob to select [CONNECT], then press the SUB DIAL knob to connect.



• Delete all registered (paired) Bluetooth devices from the list

1. Turn the Bluetooth headset you are currently using OFF.
2. Press and hold the **FUNC** knob.
3. Touch **[111 Bluetooth]**.
Or rotate the **FUNC** knob to select **[111 Bluetooth]**, then press the **FUNC** knob.
4. Rotate the **FUNC** knob to select **[DEVICE]**, then press the **FUNC** knob.
5. Rotate the **DIR DIAL** knob to select **[DEL ALL]**, then press the **DIR DIAL** knob.
All Bluetooth headsets are deleted from the device list.

 All registered Bluetooth headsets are deleted. Headsets cannot be deleted individually.

Bluetooth received audio output

When a Bluetooth headset is connected, the received audio can automatically be output from the headset only, or from both the headset and the transceiver speaker.



1. Press and hold the **FUNC** knob.
2. Touch **[111 Bluetooth]**.
Or rotate the **FUNC** knob to select **[111 Bluetooth]**, then press the **FUNC** knob.

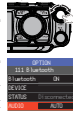
3. Rotate the **FUNC** knob to select **[AUDIO]**, then press the **FUNC** knob.
4. Rotate the **FUNC** knob to select **[AUTO]** or **[FX]**.

AUTO - The received audio comes from only the Bluetooth headset.

FX - The received audio comes from both the Bluetooth headset and the speaker of the transceiver.

Factory default value: **[AUTO]**.

5. Press any key or knob, other than the  or  key, to save the settings and return to normal operation.



Dual Receive Function

While receiving on the VFO or Memory Channel, the transceiver checks for signals on the HOME channel once every 3 seconds. When a signal is received on the HOME channel, the priority scan pauses, allowing reception of the signal. When there is no signal on the HOME channel for about 3 seconds, the transceiver will resume Priority Scan.

The transceiver monitors signals on the frequency registered to the Priority HOME Channel, once approximately every 3 seconds.



The transceiver returns to the previous frequency quickly and continues to receive mode when there is no signal.

- **Activating Priority Scan**
 1. Press and hold the **FUNC** knob.
 2. Touch **[2] DUAL RCV MODE**.
 3. Rotate the **FUNC** knob to select **[PRIO] PRIORITY SCAN**, then press the **FUNC** knob.
 4. Press any key or knob other than the **[CLR] CLEAR** key, to save the settings and return to normal operation.
- **Disable the Priority Scan function**

To cancel Priority Scan, just repeat the above procedures, selecting "OFF" in step 3 above.

Using the Voice Recorder

With the voice recording function, the received audio of the other station, and/or the transmit audio of this unit is recorded on the MicroSD memory card. The recorded file can be played back with the PFM-SOURCE or the MicroSD memory card can be taken out and used on a PC. Once recording is started, it continues until recording is stopped, or the capacity of the MicroSD card is full.

• About the file

- The audio file is saved in the "VOICE" folder on the MicroSD card.
- The file name is "YYMMDDHHMMSS.wav" (YY: year, MM: month, DD: day, hh: hour, mm: minute, ss: second) depending on the date and time when the recording started.

*When using the MicroSD memory card for the first time, please refer to "Formatting a MicroSD Memory Card" on page 64 for formatting.
*Once the date and time information is used for the voice recording function names and the frequency when recording, it is recommended to set the date and time by following the procedure below:
Press and hold the FUNC (1103) >> DR DATE/TIME ADJUST

Recording the received audio

1. Press and hold the FUNC knob.
2. Touch [4] REC/STOP.
Or inside the FUNC knob, touch [4] REC/STOP, then press the FUNC knob.
 - "REC" is displayed, and the recording function starts.
3. Press any key or knob, other than the [1] (1101) key or [4] (1104) knob, to save the settings or return to normal operation.
 - "RF" is displayed at the top of the LCD and the unit enters the recording standby mode. When a signal is received, recording starts automatically.
 - During recording, the "RF" indication changes to "R".
 - With the factory default settings, the "MAIN-BAND" received audio is recorded.
 - Recording will be paused about 3 seconds after the receipt of the band that is recording is closed. The standby mode returns after a 60 s timeout.
 - The band or bands to be recorded, and whether or not to include the transmit audio in the recording may be selected in the set menu.

1 Recording is stopped when the transceiver is turned OFF.

• Disable the recording function

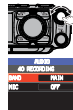
1. Press and hold the FUNC knob.
2. Touch [4] REC/STOP.
Or inside the FUNC knob, touch [4] REC/STOP, then press the FUNC knob.
 - "STOP" is displayed and the recording function is stopped.
 - When a new recording is started, a new file will be created.



Setting the Recording Function

The band or bands to be recorded, and whether or not to include the transmit audio in the recording may be selected.

1. Press and hold the **FUNC** knob.
2. Touch **REC RECORDING**.
- Or inside the **FUNC** knob to select **REC RECORDING**.



3. Rotate the **FUNC** knob to select **[BAND]**. Then press the **FUNC** knob to select the band to record.
 - MAIN** Record the MAIN-band received audio
 - SUB** Record the SUB-band received audio
 - MAIN+SUB** Record both MAIN-band and SUB-band received audio
4. Press the **MEMO** key.
5. Rotate the **FUNC** knob to select **[MIC]**, then press the **FUNC** knob to select **"ON"** or **"OFF"**.
 - ON** Record both transmit and receive audio
 - OFF** Record only the receive audio
6. Press any key or knob, other than the **MEMO**, **FUNC** or **CALL** key, to save the settings and return to normal operation.

Playback the recorded audio

Playback is not possible during recording, so stop recording and follow the steps below to play the file.

1. Press and hold the FUNC knob.
2. Touch [RE LOG LIST].
Or rotate the FUNC knob to select [RE LOG LIST], then press the FUNC knob.



3. Rotate the FUNC knob to select [VOICE], then press the FUNC knob.
The recorder file will be displayed in a list.
 - Press the SUB DIAL knob, then rotate the SUB DIAL knob to select [E], and press the SUB DIAL knob to display the Deleted file.
 - Press the SUB DIAL knob, then rotate the SUB DIAL knob to select [TOP], and press the SUB DIAL knob to display the Deleted file.
4. Rotate the FUNC knob to select the file to playback.



5. Press the FUNC knob.
 - Playback will begin.
 - The red-eye mode will not be heard during playback.
 - Play back while recording is not possible.
 - Rotate the FUNC knob to select [E], then press the FUNC knob to pause playback.
 - Rotate the FUNC knob to select [R] or [F], then press the FUNC knob, to rewind or fast forward 5 records at a time.



- **Delete file**
 1. Rotate the FUNC knob in step 3 to select the file to be deleted, and then press the SUB DIAL knob.
 2. Touch [DEL].
Or rotate the SUB DIAL knob to select [DEL], then press the SUB DIAL knob.
 3. Touch [OK] twice.
Or rotate the SUB DIAL knob to select [OK], then press the SUB DIAL knob.

GPS Function
The FTN-5102RDE is equipped with a GPS (Global Positioning System) receiver. When receiving signals from GPS satellites, the current position (latitude, longitude, altitude) can be calculated and displayed within a tolerance of several meters. In addition, GPS receives the exact time from the satellite electronic clock.

1 Call to use the external GPS function by the following procedure below:
Press and hold the **FUNC** (F1) or **F2** key. → **GPS DEVICE**. → **GPS ON/OFF**.

WRES-X function
WRES (Wide-coverage Internet Registrar Enhancement System) is an Internet communication system which expands the range of amateur radio communications by connecting with a local **WRES-X** Node station. The FTN-5102RDE can communicate and exchange data via the Internet via **WRES-X** nodes worldwide. Use the Home Station function to write (upload) and read (download) digital data (text, images and audio). When connected to a **WRES-X** node station or node, the node name, home name, call sign of the other station, distance, and direction, are all displayed on this screen.

2 For details, refer to the separate **WRES-X** Function Manual which is available on the Yaesu website.

APRS (Automatic Packet Reporting System) function
The FTN-5102RDE uses a GPS receiver to acquire and display the position location information. The **APRS** feature uses the location information to forward the position information, data and messages, using the format developed by Bob Brantley W9ABP. Upon receiving an **APRS** report from a remote station, the direction and distance to the remote station from your station, the speed of the remote station, and other data sent by the remote station may be displayed on the LCD of your transceiver. Setting several station parameters, such as the call sign and symbol is required before using the **APRS** function (initial settings).

3 For details, refer to the **APRS** Function Instruction Manual which is available on the Yaesu website.

For additional details on the Memory Functions, refer to the Advanced Manual which may be downloaded from the [Yareo website](#).

Tone squelch feature

This tone squelch opens the speaker audio only when a signal containing the specified CTCSS tone is received. By matching the CTCSS tone frequency with the partner station, quiet standby monitoring is possible.

DCS (Digital Code Squelch) feature

The DCS (Digital Code Squelch) function allows audio to be heard only when signals containing the same DCS code are received.

New PAGER (EPACS) feature

This new feature allows calling specified stations only by using a pager code that contains two CTCSS tones. Even when the person who is called is not near the transmitter, the information is displayed on the LCD to indicate that a call was received. When the call is received, the bell sounds.

DP-ID (Digital Personal ID) feature

DP-ID (Digital Personal ID) feature opens the speaker audio only when a CPM signal set to the same DP-ID in the Digital Menu is received.

Using Setup Menu

The Set Mode menu allows configuring the various functions to accommodate individual operating needs and preferences.

Setup Menu Operation

1. Press and hold the **FUNC** knob.
2. The **SETUP MENU** screen will be displayed.
 - 3. Rotate the **FUNC** knob to select the desired item in the Setup Menu, then press the **FUNC** knob.
 - 4. "*" is displayed at the right of sub-menu items that have a deeper level of menu items.
 - 5. Press the **MEMO** key to return to the previous screen.
 - 6. Rotate the **INFO** **DEAL** knob, or press the **UP** / **DOWN** key on the microphone to scroll through the 17 categories in the Setup Menu (one below).
3. When there is no deeper level of menu items, go to step 4.
4. When there is a deeper level of menu items, rotate the **FUNC** knob to select the desired item, then press the **FUNC** knob.
5. Press any key or knob, other than the **MEMO** or **INFO** key, to save the settings and return to normal operation.



Menu Number Item	Description	Default Value	Refer to the section
01 MEMORY LOST BOOK	Whether to set memory clearance to OFF	MEMORY LOSS	System's built-in default settings
02 TIME			
02 TIME TONER	When toner level falls below the level, which is set in FRC, allow replacement	0: Allow / 1: Warn / 2: Warn / 3: Warn	
02 TIME CLEAR	Cancel the registration of all FRCs	0: OFF / 1: ON	
02 TIME COPY	Cancel the loading time of the cartridge when the printer is in the sleep mode	0: OFF / 1: ON	
Copy			
03 SLEEP	When the printer is in the sleep mode, the frequency of the fan rotation	0: OFF / 1: LOW / 2: HIGH	
04 SAND SAMP	Whether to sample sand	0: OFF / 1: ON	
05 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
06 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
07 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
08 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
09 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
10 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
11 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
12 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
13 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
14 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
15 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
16 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
17 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
18 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
19 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
20 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
21 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
22 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
23 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
24 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
25 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
26 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
27 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
28 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
29 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
30 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
31 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
32 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
33 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
34 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
35 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
36 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
37 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
38 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
39 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
40 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
41 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
42 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
43 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
44 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
45 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
46 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
47 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
48 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
49 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
50 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
51 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
52 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
53 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
54 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
55 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
56 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
57 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
58 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
59 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
60 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
61 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
62 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
63 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
64 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
65 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
66 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
67 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
68 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
69 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
70 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
71 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
72 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
73 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
74 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
75 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
76 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
77 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
78 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
79 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
80 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
81 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
82 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
83 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
84 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
85 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
86 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
87 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
88 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
89 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
90 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
91 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
92 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
93 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
94 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
95 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
96 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
97 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
98 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
99 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	
00 SFP MODE	Whether to use SFP mode	0: OFF / 1: ON	

Restoring to Defaults (Reset)

Caution

When the All Reset function is performed, all data registered in the memory will be deleted. Be sure to back up the settings on paper or check on the data on the microSD memory card.

All Reset

To restore all transmitter settings and memory content to the factory defaults.

1. Press and hold the **FUNC** knob.
The **SETUP MENU** screen will be displayed.
2. Touch [12] **FACTORY RESET**.
Or rotate the **FUNC** knob to select [12] **FACTORY RESET**. Then press the **FUNC** knob.
FACTORY RESET appears on the LCD.
3. Touch [OK].
Or rotate the **FUNC** knob to select [OK].
To cancel the resetting, select [CANCEL], then press the **FUNC** knob.
4. Touch [OK] or press the **FUNC** knob to reset all.

After resetting all defaults, the call sign input message appears on the LCD. Set the call sign (page 4).



Memory Channels Reset

To erase only the registered all memory channels.

1. Press and hold the **FUNC** knob → select [12] **MEMORY CH RESET** → Touch [12] **MEMORY CH RESET**.
MEMORY RESET appears on the LCD.
2. Touch [OK].
To cancel the resetting, touch [CANCEL].
3. Touch [OK] to delete all memory contents.

APRS Reset

To restore all APRS settings to the factory defaults.

1. Press and hold the **FUNC** knob → select [12] **APRS RESET** → Touch [12] **APRS RESET**.
APRS RESET appears on the LCD.
2. Touch [OK].
To cancel the resetting, touch [CANCEL].
3. Touch [OK] to delete all APRS settings.

Text input screen

The keyboard screen is displayed when entering your own 6-digit-old tag or memory character tag.

Character input method

1. Touch a character on the screen to enter it.
Or rotate the **FUNC** knob to select a character, then press the **FUNC** knob.
 2. The selected character is entered and the cursor moves right in the text input area.
 3. Repeat steps 1 to enter additional characters.
 4. When input is complete, press and hold the **FUNC** knob to save the character.
- Touch **←** or **→** or select **←** or **→** then press the **FUNC** knob to move the cursor left or right in the text input area.
 - Touch **␣** or select **␣**, then press the **FUNC** knob to enter a space at the left of the cursor position.
 - Touch **␣** or select **␣**, then press the **FUNC** knob to enter a space at the cursor position.

Alphabet input

- Each time **A** or **B** is touched, or rotate the **FUNC** knob to select **A** or **B**, and each time the **FUNC** knob is pressed, the input screen changes as follows.
- Each time **Caps** is touched, or rotate the **FUNC** knob to select **Caps**, and each time the **FUNC** knob is pressed, the input switches between small and capital letters.



Numbers and Symbols input

- Each time **0**, **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**, **!**, **@**, **#**, **\$**, **%**, **&**, *****, **^**, **&** is touched, or rotate the **FUNC** knob to select **0**, **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**, **!**, **@**, **#**, **\$**, **%**, **&**, *****, **^**, **&**, and each time the **FUNC** knob is pressed, the input screen changes as follows.



Specifications

General

Frequency Range	TX: 144 - 148MHz or 144 - 149MHz (Depends on the receiver version) RX: 430 - 439MHz or 430 - 440MHz 127 - 148MHz (43MHz 10W / 10W 50mW) 174 - 430MHz (143MHz 10W / 10W 50mW) 430 - 439MHz (43MHz 10W / 10W 50mW) 430 - 439MHz
Channel Steps	5 / 6.25 / 12.5 / 12.5 / 15 / 15 / 20 / 20 / 25 / 100kHz (8.25kHz only for Air band)
Mode of Emission	F1D, F2D, F3E, F7E
Frequency Stability	± 2.5ppm ± 4°F or ± 140°F (20°C to 40°C)
Antenna Impedance	50Ω
Supply Voltage	Normal: 13.8V DC, negative ground 10A (50W TX, 144MHz) 10A (50W TX, 430MHz)
Current Consumption (approx.)	0.2A (RX only)
Operating Temperature Range	-4°F to +140°F (20°C to 40°C)
Case Size (W x H x D)	Receiver: 1.47" x 1.00" x 2.2" (38 x 42 x 53mm) (with Feet) Controller: 6.14" x 2.52" x 2.31" (156 x 64 x 58.6mm) (with Feet)
Weight (approx.)	3.05lbs (1.4kg) (with Feet, 10A Controller, Control Cable)

Transmitter

RF Power Output	50W (144MHz), 50W (430MHz) / 25W / 5W
Modulation Type	F1D, F2D, F3E, Variable Resonance Modulation F7E: 4FSK (C4FM)
Maximum Deviation	±4kHz
Spectrum Emission	At least 0dB below
Microphone Impedance	> 2kΩ
DATA Jack Impedance	> 1kΩ

Receiver
Circuit Type : Double-Conversion Super Heterodyne
Intermediate Frequency : 1st: 5MHz Band 55.73MHz
 2nd: 5MHz Band 55.73MHz
Sensitivity : C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
Selectivity (-40dB/40dB) : NFM, AM 12 kHz/30 kHz
 C_{50} for 100 μ V (1000) : 15.5dBc (20dB)
AF Output Impedance : 50 Ω , 750 Ω , 1.5 Ω (Earm-Phone)
 50 Ω , 750 Ω , 1.5 Ω (Earm-Phone)
AF Output Impedance : 50 Ω
Strength of accuracy : 4.00 and below

Specifications are subject to change without notice, and are guaranteed within the 100/100 MHz standard bands only.

About internal spurious signals
 Certain frequency combinations of spurious responses may cause some effect on the receiver when used. If possible due to the high frequency of the external oscillator. However, this is not a malfunction (refer to the calculator formula below) in any way. Depending on the combination of the frequency received at the same time, there may also be fluctuations in the receiver sensitivity.

- Reception frequency + 19.2kHz \times times
- Reception frequency + 120kHz \times times
- Reception frequency + 60.2kHz \times times
- Reception frequency + 60.2kHz \times times
- Reception frequency + 19.2kHz \times times
- Upper (5MHz Band) frequency + Lower (5MHz Band) frequency + 55.68MHz \times times
- Lower (5MHz Band) frequency - Upper (5MHz Band) frequency + 55.73MHz \times times

YAESU LIMITED WARRANTY

Limited Warranty is valid only in the country/region where the product was originally purchased.

On-line Warranty Registration:
Thank you for buying YAESU product! We are confident your new radio will serve your needs for many years. Please register your product at www.yaesu.com. Contact a Dealer.

Warranty Terms:
Subject to the Limitations of the Warranty and the Warranty Procedures described below, YAESU MUSEN hereby warrants this product to be free of defects in materials and workmanship in normal use during the "Warranty Period" (the "Limited Warranty").

Limitations of Warranty:

- A. YAESU MUSEN is not liable for any express warranties except the Limited Warranty described below.
- B. The Limited Warranty is extended only to the original end-user purchaser or the person acquiring this product in a gift and shall not be extended to any other person or franchise.
- C. Unless a different warranty period is stated with this YAESU product, the Warranty Period is three years from the date of retail purchase by the original end-user purchaser.
- D. The Limited Warranty is valid only in the country/region where this product was originally purchased.
- E. During the Warranty Period, YAESU MUSEN will, at its sole option, repair or replace (with new or substituted replacement parts) any defective parts within a reasonable period of time and free of charge.
- F. The Limited Warranty does not cover shipping cost (including transportation and insurance) from one location to another, or the repair fees, delivery or labor.
- G. The Limited Warranty does not cover any frustration caused by interfering persons, failure to follow instructions supplied with the product, unauthorized modification, or damage to the product or any component, such as accident, misuse, moisture, lightning, power surge, connection to improper voltage supply, damage caused by inadequate packing or shipping procedures, loss of, damage to, or corruption of stored data, product modification to enable operation in another jurisdiction, other than the jurisdiction of the radio, a use designed, manufactured, approved and/or authorized, or the repair of products damaged by these modifications.
- H. The Limited Warranty applies only to the product and is voided if the item is repaired, purchased, by the original retail purchaser, and shall not prohibit YAESU MUSEN from later making any changes in design, adding to, or otherwise improving subsequent versions of the product, or impose upon YAESU MUSEN any obligation to modify or alter this product to conform to such changes or improvements.
- I. YAESU MUSEN shall not be responsible for any consequential damages caused by or arising out of any such defect in materials or workmanship.
- J. TO THE FULLEST EXTENT PERMITTED BY LAW, YAESU MUSEN SHALL NOT BE RESPONSIBLE FOR ANY IMPLIED WARRANTY WITH RESPECT TO THIS PRODUCT.
- K. If the original retail purchaser does not comply with the Warranty Procedures described below, the YAESU MUSEN radio will void the purchase of a replacement product unless the radio is returned to the original retail purchaser, and shall apply to the replacement product only for the remainder of the original product's Warranty Period.
- L. Warranty details vary from state to state, or country to country, so some of the above limitations may not apply to your location.

Warranty Procedures

1. To see the Authorized VMECL Service Center in your country/region, visit www.yesmc.com. Contact the VMECL Service Center for specific repair and shipping instructions, or contact an authorized VMECL distributor/retailer for advice. The product will be shipped postpaid.
2. Include proof of original purchase from an authorized VMECL dealer/distributor, and ship the product, freight prepaid, to the address provided by the VMECL Service Center in your country.
3. If the product of this product, returned in accordance with the procedures described above, by the VMECL Authorized service Center, is unacceptable after 90 days, VMECL/JENSEN will return the product to conform to its original manufacturer, VMECL/JENSEN or return the repair or product to the replacement product free of charge to the original purchaser. The decision to repair or replace the product is the sole discretion of VMECL/JENSEN.

Other conditions:

VMECL/JENSEN'S MAXIMUM LIABILITY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. WE DO NOT BECOME RESPONSIBLE FOR LOSS OF DATA, CORRUPTION OF STORED DATA, OR FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES, HOW EVER CAUSED, INCLUDING WITHOUT LIMITATION TO THE REPLACEMENT OF EQUIPMENT AND PROPERTY, RECOVERY COSTS OF RECOVERING, PROGRAMMING OR REPRODUCING ANY PROGRAM OR DATA STORED IN OR USED WITH THE VMECL/PRODUCT.

Some Countries in Europe and some States of the USA do not allow the exclusion or limitation of incidental or consequential damages, or a limitation on how long an implied warranty lasts, so the above limitation or exclusion may not apply. This warranty provides specific rights, there may be other rights available which may vary between countries in Europe or from state to state within the USA.

This Limited Warranty is void if the label bearing the serial number has been removed or defaced.

Changes or modifications to this device that are not expressly approved by TASCOS LIMITED may void the user's authorization to use this device. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference from radio transmitting devices, even if that interference causes the device to operate in an unintended manner. This device is intended for use in the unlicensed 2.4 GHz ISM band. The user is responsible for avoiding interference to others while using this device, including but not limited to, following the following precautions: (a) If you experience interference with other electronic devices, you may wish to reorient or relocate the receiving antenna. (b) Increase the separation between the equipment and receiver. (c) Consult the equipment manufacturer for more information. (d) Consult the dealer or an experienced radio/TV technician for help.

DECLARATION BY MANUFACTURER
The Supplier certifies that this device is not a digital scanner and is incapable of being converted or modified to a digital scanner without the user's consent.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR MOBILE TELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

CAN ICES-5 (B) / NMS-5 (B)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off or on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the equipment manufacturer for more information.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC ICES-5 (B) and NMS-5 (B) limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off or on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the equipment manufacturer for more information.
- Consult the dealer or an experienced radio/TV technician for help.

YAESU

Declaration of Conformity

Type of equipment: **Handheld Transceiver**

Do not name: **YAESU**

Model Number: **YS7500**

Manufacturer: **YAESU INC. U.S.A.**

Address of Manufacturer: **One West 21 Street, P.O. Box 10000, Longwood, FL 32750, U.S.A.**

Address of Manufacturer: **Shimizu-ku, Tokyo 140-0212 JAPAN**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The technical documentation as required by the Conformity Assessment procedure is kept in following address:

Company: **YAESU U.S.A.**
 Address: **4125 Pacific Drive, Cypress, CA 90530, U.S.A.**
 Telephone: **714-833-3300**

EU Declaration of Conformity

We, **YAESU U.S.A.**, do hereby declare that this radio equipment conforms to the EMC Directive 2014/53/EU. The full text of the Declaration of Conformity for this product is available to view at <http://www.yaesu.com>.

ATTENTION - Condition of use

This transmitter operates on frequencies that are regulated. Use of the Transmitter in the EU is not permitted without authorization. Users should consult their national regulatory authority for licensing conditions applicable to this equipment.

Country	Frequency Range (MHz)	Power (W)	Mode
Germany	430-438	0.5	FM
France	430-438	0.5	FM
Spain	430-438	0.5	FM
Italy	430-438	0.5	FM
UK	430-438	0.5	FM
Poland	430-438	0.5	FM
Czech Republic	430-438	0.5	FM
Slovakia	430-438	0.5	FM
Slovenia	430-438	0.5	FM
Croatia	430-438	0.5	FM
Bulgaria	430-438	0.5	FM
Romania	430-438	0.5	FM
Hungary	430-438	0.5	FM
Greece	430-438	0.5	FM
Turkey	430-438	0.5	FM
Belgium	430-438	0.5	FM
Netherlands	430-438	0.5	FM
Denmark	430-438	0.5	FM
Sweden	430-438	0.5	FM
Finland	430-438	0.5	FM
Austria	430-438	0.5	FM
Portugal	430-438	0.5	FM
Switzerland	430-438	0.5	FM
Luxembourg	430-438	0.5	FM
Spain	430-438	0.5	FM
Italy	430-438	0.5	FM
France	430-438	0.5	FM
Germany	430-438	0.5	FM
UK	430-438	0.5	FM
Poland	430-438	0.5	FM
Czech Republic	430-438	0.5	FM
Slovakia	430-438	0.5	FM
Slovenia	430-438	0.5	FM
Croatia	430-438	0.5	FM
Bulgaria	430-438	0.5	FM
Romania	430-438	0.5	FM
Hungary	430-438	0.5	FM
Greece	430-438	0.5	FM
Turkey	430-438	0.5	FM
Belgium	430-438	0.5	FM
Netherlands	430-438	0.5	FM
Denmark	430-438	0.5	FM
Sweden	430-438	0.5	FM
Finland	430-438	0.5	FM
Austria	430-438	0.5	FM
Portugal	430-438	0.5	FM
Switzerland	430-438	0.5	FM
Luxembourg	430-438	0.5	FM

Disposal of Electronic and Electrical Equipment

Products with the symbol (crossed-out wheeled bin) cannot be disposed of in household waste.

Electronic and Electrical Equipment should be recycled at a facility capable of handling such items and their waste by-products.

Please contact your local authority, retailer, the manufacturer, or service center for information about the waste collection system in your country.

YAESU
Radio for Professionals

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